KENWOOD

100MHz READOUT OSCILLOSCOPE

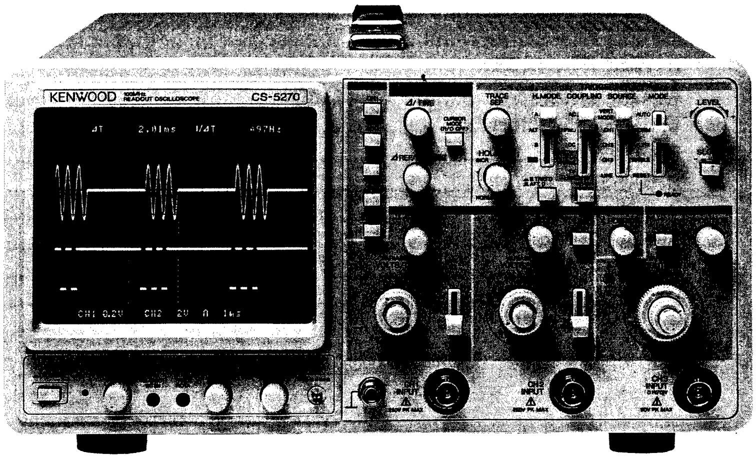
CS-5270

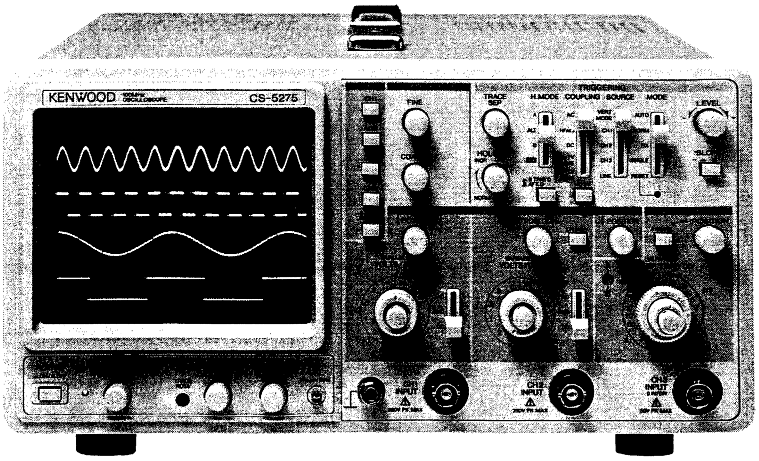
100MHz OSCILLOSCOPE

CS-5275

SERVICE MANUAL

KENWOOD CORPORATION


KENWOOD
CS-5270
TRACE SEP
H.MODE
COUPLING
SOURCE
MODE
LEVEL


KENWOOD
CS-5275
TRIGGERING
TRACE SEP
H.MODE
COUPLING
SOURCE
MODE
LEVEL
FINE

WARNING

The following instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than contained in the operating instructions unless you are qualified to do so.

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SPECIFICATIONS

CRT		
Type		150 mm rectangular tube with an integral graticule
Acceleration voltage		Approx. 12 kV
Effective area		8 × 10 divisions (1 division = 10 mm)
VERTICAL AXIS (COMMON TO CHANNELS 1 AND 2)		
Sensitivity (+10 to +35℃)		1 mV, 2 mV/div : ±5%, 5 mV to 5 V/div: ±3%
Attenuation		1-2-5 steps, 12 ranges, fine control between ranges
Input impedance		1 MΩ ± 2%, approx. 25 pF
Frequency response (-3 dB) (+10 to +35℃)	5mV to 5V/div	DC: DC to 100MHz AC: 5Hz to 100MHz
	1mV to 2mV/div	DC: DC to 20MHz, AC: 5Hz to 20MHz
Rise time (+10 to +35℃)	5mV to 5V/div	Approx. 3.5 ns
	1mV to 2mV/div	Approx. 17.5 ns
Signal delay time		The leading edge may be checked using a square wave of the rise time less than that of this model.
Crosstalk		-40 dB or less (at 1 kHz)
⚠Maximum input voltage		500 Vp-p or 250 V (DC+AC peak, 1 kHz or less)
VERTICAL AXIS (CH3)		
Sensitivity (+10 to +35℃)		0.1 V/div: ±3%
Input impedance		1MΩ ± 2%, approx. 25 pF
Frequency response (-3 dB) (+10 to +35℃)		DC to 100 MHz
Rise time (+10 to +35℃)		Approx. 3.5 ns
Signal delay time		The leading edge may be checked using a square wave of the rise time less than that of this model.
⚠Maximum input voltage		100 Vp-p or 50 V (DC+AC peak, 1 kHz or less)
Operation		Single trace: CH1, CH2, CH3 or ADD single trace operation Multi-trace : 2 to 4 traces of CH1, CH2, CH3 and ADD
		ALT/CHOP: Display by selecting ALT and CHOP ADD : Composite waveform of CH1 and CH2 signals are displayed.

SPECIFICATIONS

Chop frequency		Approx. 250 kHz (in multi-trace operation)
Channel polarity		Normal or inverted, CH2 only inverted
Horizontal axis (CH2, except for ×10 MAG operation)		
Sensitivity (+10 to +35℃)		Same as vertical axis (CH2)
Input impedance		Same as vertical axis (CH2)
Frequency response (-3 dB) (+10 to +35℃)		DC: DC to 1 MHz, AC: 5 Hz to 1 MHz
X-Y phase difference		3° or less at 100 kHz
Operation mode		X-Y mode is selected with H. MODE CH1: Y-axis, CH2: X-axis
⚠Maximum input voltage		Same as vertical axis (CH2)
SWEEP		
Sweep types		A : A sweep ALT : Alternate A sweep and B sweep B : B sweep X-Y : X-Y oscilloscope operation
Sweep time (+10 to +35℃)	A sweep	0.5s to 50ns/div ±3% 1-2-5 steps, 22 ranges, fine adjustment between ranges
	B sweep	50ms to 50ns/div ±3% 1-2-5 steps, 19 ranges, fine adjustment betwen ranges
Sweep magnified operation (+10 to +35℃)		×10 ± 5% (±8% for over 0.5 ns/div)
Linearity (+10 to +35℃)		±3% (±5% in ×10 MAG operation)
HOLDOFF		Continuously variable from A sweep NORM position
Trace separation		B sweep is continuously variable by ±4 divisions or more with respect to A sweep.
Delayed sweep operation		Continuous delay operation (AFTER DELAY) Synchronous delay operation (B TRG'D) : Synchronous with the trigger signal
Delay time		Continuous control by 0.2 to 10 divisions for 0.5 div to maximum speed sweep
Delay time error (+10 to +35℃)		[CS-5275]: ±(3% of set value+1% of full scale)+(0 to 300 ns) [CS-5275]: Reading on CRT ±4% (0 to 300 ns)
Delay jitter		10000 : 1 of a value 10 times as high as A sweep setting

SPECIFICATIONS

TRIGGERING	
Trigger modes	AUTO : Automatic free running with no signal NORM : Triggered sweep FIX : Sweep at triggering point set to center of signal amplitude SINGLE: Single sweep mode RESET : Restarting single sweep operation
Trigger signal sources	VERT: Input signal selected for V. mode CH1 : Channel 1 input signal CH2 : Channel 2 input signal CH3 : Channel 3 input signal LINE: Commercial power line
Trigger coupling (For trigger sensitivity, see the table below.)	AC : AC coupling from 10 Hz HFrej : Low-pass filter coupling up to 30 kHz DC : DC coupling TV FRAME: Composite video signal, vertical synchronization separation TV LINE : Composite video signal, horizontal synchronization separation

Trigger sensitivity (+10 to +35℃)

MODE	COUPLING	Signal frequency	Sensitivity (Amplitude)	
			NORM	FIX *
NORM	AC	10Hz to 50MHz	1div	1.5div
		50M to 100MHz	1.5div	2div
	HFrej	10Hz to 30kHz	1div	1.5div
		over 30kHz	>min.	>min.
	DC	DC to 50MHz	1div	1.5div
		50M to 100MHz	1.5div	2div
	TV-F, -L	Composite video signal	1.5div	
	HDTV	HDTV video signal	1.5div	

AUTO : Same as above specifications for above 40Hz.

(The table shows the sensitivities in terms of the amplitude displayed on the CRT.)
(>min. for the HFrej sensitivity shows that the amplitude necessary for synchronization increases.)

FIX * : Same as above specifications for above 50Hz.

SPECIFICATIONS

CALIBRATION SIGNAL : POSITIVE SQUARE WAVE, 1 Vp-p ±3%, APPROX. 1 kHz		
INTENSITY MODULATION		
Input voltage		Darkens at TTL level (+5 V).
Input impedance		Approx. 10 kΩ
Frequency response (+10 to +35℃)		DC to 5 MHz
⚠Maximum input voltage		100 Vp-p or 50V (DC+AC peak)
CH1 OUTPUT SIGNAL (WITH 50 Ω LOAD)		
Output voltage		Approx. 50 mVp-p/div
Output impedance		Approx. 50 Ω
Frequency response (-3dB)	1, 2 mV	100 Hz to 20 MHz
	5 mV to	100 Hz to 100 MHz
TRACE ROTATION : TRACE ANGLE IS ADJUSTABLE WITH A SEMI-FIXED CONTROL ON PANEL.		
POWER SUPPLY		
Voltage		100/120/220/230 VAC ± 10 %
Frequency		50 Hz or 60 Hz
Power consumption		Approx. 48 W, 43 W Approx. 56VA, 51VA
DIMENSIONS AND WEIGHT (VALUES ENCLOSED IN PARENTHESES INCLUDE PROJECTIONS.)		
Width		300 mm (300 mm)
Height		150 mm (172 mm)
Depth		400 mm (469 mm)
Weight		Aprrox. 8.7 kg
OPERATING TEMPERATURE AND HUMIDITY		
Operating temperature and humidity		0 to 40℃, 85% RH or less
Storage temperature and humidity		−20 to 70℃, 85% RH or less
ACCESSORIES		
Probe		PC-31: 10 MΩ ±1%, 12.5 pF±10%, 10:1 [CS-5270] PC-39: 10 MΩ ±1%, 12.5 pF±10%, 10:1 [CS-5275]
		2 each
Instruction manual		1 copy
Adjusting screwdriver		1
Power cord		1
Replacement fuse		1 A×2 (for 100 V area) 630 mA×2 (for 200 V area)

SPECIFICATIONS

[The specifications shown below do not apply to the CS-5275.]

READOUT	
Set values	CH1 and CH2 scale factors (with probe detection), CH3 scale factor (0.1 V/div fixed, with no probe detection), V-UNCAL, ADD, INV, A/B sweep scale factors (MAG-converted), sweep - UNCAL, DELAY TIME, TRIG'D, X-Y
Cursor modes (Between ΔREF and Δ cursors) In X-Y mode, only ΔV1 may be set.	ΔV1 :Displayed in voltage with conversion according to CH1 scale factor ΔV2 :Displayed in voltage with conversion according to CH2 scale factor ΔV3 :Displayed in voltage with conversion according to CH3 0.1 V/div ΔT :Displayed in time with conversion according to A sweep scale factor 1/ΔT:Displayed in frequency with conversion according to A sweep scale factor
In V, H-VARI or UNCAL mode	RATIO:Voltage ratio and time ratio are displayed, with 5 divisions on the CRT as 100%. PHASE:Phase difference is displayed, with 5 divisions on the CRT as 360°
Cursor measurement	Resolution : 10 bits Measuring error: ±4% Measuring range: ±3.6 divisions or more vertically from CRT center. ±4.6 divisions or more horizontally from CRT center.

■The specifications shown above are subject to change without notice.

SAFETY

SAFETY

Before connecting the instrument to a power source, carefully read the following information, then verify that the proper power cord is used and the proper line fuse is installed for power source. The specified voltage is shown at the fuse holder of the AC inlet. If the power cord is not applied for specified voltage, there is always a certain amount of danger from electric shock.

Line voltage

This instrument operates using ac-power input voltages that 100/120/220/230 V at frequencies from 50 Hz to 60 Hz.

Power cord

The ground wire of the 3-wire ac power plug places the chassis and housing of the oscilloscope at earth ground. Do not attempt to defeat the ground wire connection or float the oscilloscope; to do so may pose a great safety hazard. The appropriate power cord is supplied by an option that is specified when the instrument is ordered.

The optional power cords are shown as follows in Fig. 1.

Line fuse

The fuse holder is located on the rear panel and contains the line fuse. Verify that the proper fuse is installed by replacing the line fuse.

Voltage conversion

This oscilloscope may be operated from either a 100 V to 230 V, 50/60 Hz power source. Use the following procedure to change from 100 to 230 volt operation or vice versa.

1. Remove the fuse holder.
2. Replace fuse F 1 with a fuse of appropriate value, 1 amp for 100 VAC to 120 VAC operation, 630 m amp for 220 VAC to 230 VAC operation.
3. Reinsert it for appropriate voltage range.
4. When performing the reinsertion of fuse holder for the voltage conversion, the appropriate power cord should be used. (See Fig. 1.)

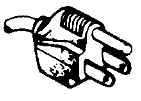
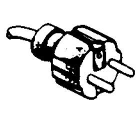
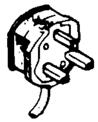
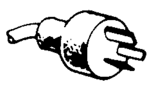
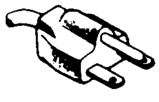
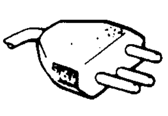
Plug configuration	Power cord and plug type	Factory installed instrument fuse	Line cord plug fuse	Parts No. for power cord
	North American 120 volt/60 Hz Rated 15 amp (12 amp max; NEC)	1 A, 250 V Fast blow 6×30 mm	None	E30-1951-05
	Universal Europe 220 volt/50 Hz Rated 16 amp	North Europe 630 mA, 250 V Slow blow 5×20 mm Other Europe 630 mA, 250 V Slow blow 6×30 mm	None	E30-1952-05
	U.K. 240 volt/50 Hz Rated 13 amp	630 mA, 250 V Slow blow 6×30 mm	None	E30-1947-05
	Australian 240 volt/50 Hz Rated 10 amp	630 mA, 250 V Slow blow 6×30 mm	None	E30-1821-15
	North American 240 volt/60 Hz Rated 15 amp (12 amp max; NEC)	630 mA, 250 V Slow blow 6×30 mm	None	–
	Switzerland 240 volt/50 Hz Rated 10 amp	630 mA, 250 V Slow blow 6×30 mm	None	–

Fig. 1 Power Input Voltage Configuration

CIRCUIT DESCRIPTION

VERTICAL PREAMPLIFIER UNIT

CH1, CH2

Each of the CH1 and CH2 inputs passes through an AC/DC/GND switch and enters the 1st attenuator (1/1, 1/10, 1/100).

The 1st attenuator is used in combination with the 2nd attenuator (1/1, 1/2, 1/4, 1/10) and the 5-fold function of the 2nd amplifier, to switch the 12 vertical ranges.

The head amp is composed of Q102 and U101 (Q202 and U201) and is a 1/1 buffer amp with an input impedance of 1 megohms and used for conversion of impedance. Q102 (Q202) is the source-follower. This head amp is installed between the 1st and 2nd attenuators.

Starting from the 2nd amp, this unit takes the differential amplifier configuration. The functions of U102 (U202) include the variation and inversion functions. The variation function allows to vary the gain continuously according to the voltage applied to pin 5. The inversion function allows to invert the phase according to the voltages applied to pins 6 and 7. As this function is provided only for CH2, CH1 is fixed. At the CH2 side, switch is done by Q215. Q103 (Q203) is the regulated current supply for U102 (U202).

Q106 and Q107 (Q206 and Q207) form an emitter-grounded amp.

Q108 to Q111 (Q208 to Q211) form the cascode amp of the differential amp. The vertical position can be moved by regulating the current applied to the emitter of Q111 (Q211) based on the panel operation.

CH3

With CH3, the attenuator is fixed. The signal impedance is converted by the buffer amp of source follower Q303 and regulated current supply Q304 and the signal is sent to emitter-follower Q305. Q305 is the signal side input stage of the differential amp.

Emitter-follower Q306 is the input stage of a constant-potential differential amp.

The outputs from Q305 and Q306 are input to the differential type cascode amp formed by Q307, Q308, Q310 and Q311. The current of the cascode amp is determined by regulated current supply Q309. The vertical position can be moved by regulating the current applied to the emitter of Q311 based on the panel operation.

Channel selector, delay line drive

As for the outputs from the position amps of the channels, only the signal of the channel with which the cathodes of CH1 - D104, D105, CH2 - D204, D205, CH3 - D301, D302, D304, D305 are turned "H" by the signals from V-MODE LOGIC is sent through CH1 - D103, D106, CH2 - D203, D206, CH3 - D303, D306 and transmitted to the delay line driver.

Q2 and Q3 form a feedback amp. Q1 lets the excessive bias current flow when CH1 or CH2 is in ADD mode.

Trigger amp, trigger selector

With CH1 (CH2), the differential outputs from U102 (U202) are input to the emitter-followers Q112 and Q113 (Q212 and Q213), where Q113 (Q213) forms a cascode amp with Q114 (Q214). With CH3, the signal after the buffer amp is sent through the buffer of emitter-follower Q314, feedback amp Q312 an output as current from the collector of emitter-follower Q313.

Only the signal of the channel with which the cathode of CH1 - D108, CH2 - D208, CH3 - D308 is turned "H" by the signal from the trigger controller is sent through CH1 - D107, CH2 - D207, CH3 - D307 and output as current to the Horizontal unit. Q31 the excessive bias current flow when CH1 or CH2 is in ADD mode.

CH1 OUT

The CH1 output is sent from the collector of Q112, through emitter-follower Q51 and output at CH1 OUT of the Final unit.

Trigger controller

The data on the trigger source set on the panel is input to pin 1 of U1 and "H" or "L" is output at pins 4 to 8 according to the set state.

U2 is used to switch between the data from U1 and the CRT display data of each channel from V-MODE LOGIC. If the current mode is not V mode, the former data is selected. If the current mode is V mode, the latter data is selected for use in controlling the trigger selector.

Among CH1 - U2 pin 7, CH2 - U2 pin 9, CH3 - U2 pin 12, the terminal set with the panel is turned "H".

V-MODE LOGIC

U3 and U4 generates a signal synchronized with the display channel select signal from the panel and the end of horizontal sweep, and a signal for controlling the channel selector based on the CHOP signal. (Figure 1)

Q34 cuts off the power supply to U4 only at the instant the channel switch is pressed, in order to prevent malfunction.

Vertical range converter

U401, U403, S102 and S202 output the vertical range, CAL and UNCAL data by turning them into analog values using an opamp for use as the R/O data. (Figures 3, 4)

Horizontal range converter

U402 and S401 output the horizontal range data using an opamp, as analog values for R/O data. (Figure 5)

U404 (for main sweep), U405 (for sub-sweep) and S401 are used to switch the reference voltage for letting the sweep current of the 1-2-5 steps of horizontal sweep flow. (Figure 2)

FINAL UNIT

Final amplifier

The signal sent from the vertical preamp through the delay line is input to the feedback amp of Q1 and Q2. During A ALT B sweep, the variation of the vertical position of sweep B is controlled by the current applied to the base of Q2 based on the panel operation.

Q3 to Q6 and U1 are used to amplify the vertical signal and U1,

Q5 and Q6 are used to amplify the R/O characters.
U1 is used to switch between the vertical signal and R/O signal.
Q9 to Q14 are cascode-connected for use in driving the CRT:

AC inlet, fuse

An external commercial supply voltage switch and fuse holder are provided.

Line filter

A filter for elimination of common mode noise and normal mode noise is provided.

CH1 OUT

The signal from the vertical preamp is output externally via Q201 and Q202 as a signal with 50-ohm impedance.

HORIZONTAL UNIT

Trigger

The trigger signal supplied from the Vertical unit (X73-2070) is AC/DC coupled and the trigger level is added to it.
The obtained signal is input to the trigger shaping circuit to become a pulse signal.
If FIX is selected, the trigger level is fixed so that it is always around the center of the waveform.
With TV-V, the composite video signal is separated by the V sync separator and input to the trigger shaping circuit.
With TV-H, the composite video signal is separated by the H sync separator and input to the trigger shaping circuit.
HFrej is used to apply a 50 kHz LPF to the trigger signal.
The polarity of the trigger pulse signal can be changed with SLOPE +/-. The output signal is input to the sweep logic circuit.
There is an additional circuit which applies the trigger signal to the sweep logic in case the trigger pulse signal has not been input for a certain period and auto free-run mode has been selected.

Sweep

When the trigger pulse is input to the sweep logic, the sweep gate is activated and the sweep wave is output.
When the sweep wave reaches a certain level, the sweep stop circuit is activated to close the sweep gate and end sweep.
When sweep stop is activated, the hold-off circuit is activated and, in a certain period after it, the sweep logic enters the trigger standby state.
The delayed sweep is performed either as the AFTER DELAY sweep or B TRIG'D sweep.
With the AFTER DELAY sweep, the voltage level of the main sweep wave and the voltage set with DTP are compared and delayed sweep is performed using the result signal as the trigger.
With the B TRIG'D sweep. sweep is triggered by the next trigger signal input after the voltage level of sweep wave have reached the voltage set with DTP.
In case ALT sweep is set, the main sweep and delayed sweep are performed alternately.

Horizontal amp

This circuitry switches between the sweep wave generated in the sweep block and the X signal and add H-POSITION.
After being magnified by 10 times if MAG has been selected, the signal is input to the R/O switch.
Here, the R/O signal is added to the vertical signal and the signal is amplified by the final amp to a high enough voltage level to drive the CRT.

Intensity circuit

The Z signal is generated with the sweep gate of the main sweep and that of the delayed sweep. During ALT sweep, a waveform for increasing the intensity of the delayed sweep section is generated with the main sweep. The voltage set with the INTEN potentiometer is added to the X signal and the voltage set with the R/O INTEN potentiometer is added to the R/O blanking signal and they are input to the high voltage circuit.
The high voltage circuits generates the CRT cathode voltage, G1 voltage and P1 voltage based on the intensity signal and the **FOCUS potentiometer**.
The cathode voltage is controlled always constant by the opamp.
For use with the after-accelerating CRT, the anode voltage is also generated by the high voltage circuit.

Power supply

AC voltages of +14.8 V, -14.8 V, +6 V, -6 V, +67 V and +170 V are input from the transformer, and they are turned into stable DC voltages of respectively +12 V, -12 V, +5 V, +55 V and +140 V, which are supplied to their respective units.

CHOP

To observe signals of multiple channels simultaneously, the vertical amp is switched with the CHOP signal.

PANEL UNIT

This unit sends the potentiometer and switch data from the control panel to other units.
A limiting circuit is provided to prevent the CHIP operation while multi-channel operation is not selected even when the CHOP key is pressed.
The voltage setting of DTP is made by the opamp in the range from 0 to +4 V. The CAL signal is a 1 kHz, 1 Vp-p square wave.
The intensity is controlled by the PWM based on the output from the original oscillator of CAL.

R/O UNIT

The R/O unit (X77-1870-00) accepts the attenuator and sweep data sent from or through the Panel unit and outputs character data to be displayed on the CRT.
It is composed of the controller block (U1, U2, U4 U5, X1), blanking circuit (U5, U14, U15, X2), A/D converter block (U3, U16, U17) and character data output block (U7, U8 U9, U10, U13).
The controller block is composed of the 1-chip CPU (with built-in ROM), RAM, decoder, ALE and oscillator x 1. The 1-chip CPU

CIRCUIT DESCRIPTION

(U1) incorporates a ROM as descried above, and the entire unit is controlled by the software written in this ROM. The 1-chip CPU is operated based on X1 (10 MHz). Before the start of operation, the reset signal is input from U18 when the power is switched on. The 1-chip CPU incorporates 8-bit A/D converters in the output ports, input ports and also internally, and it outputs character data for CRT display based on the data input through the A/D converters.

As for the output port configuration, P40 to P47 and P30 to P33 in the circuit diagram output comparison data for an external 12-bit A/D converter and P34 to P37 output the control data for use in switching the analog data to the external 12-bit A/D converter. As for the input port configuration, P60 to P64 are used to recognize the "H" or "L" level of the push switches on the panel and input the CURSOR MODE, B TRIG'D, CH2 INV and X10 MAG signals. Among them, the CURSOR MODE switch is a non-locking switch so a Schmitt circuit is provided before the signal is input to the port. P50 to P57 are the analog voltage input ports. The input voltage is sent to the internal 8-bit A/D converter, converted into digital data and becomes the CRT display data.

The 1-chip CPU has a bus configuration of 8 data bus bits and 16 address bus bits. A the lower 8 bits of the address bus are also used as the data bus bits, IC (ALE circuit IC) U6 is provided for their separation.

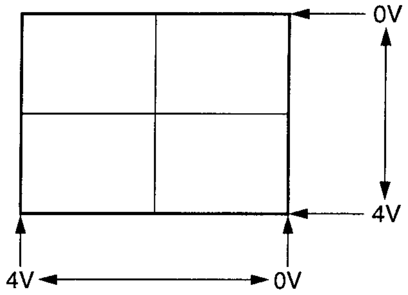
In addition to above, the controller block also incudes a decoder (U4) and memory (U2). The decoder output is supplied to the memory as well as to the X latch CLK input, Y latch CLK input and blanking circuit block which will be described below. The memory functions as the system RAM of the 1-chip CPU and also stored CRT display data. The stored data is some of the data which has originally been prepared in the ROM inside the 1-chip CPU; only the data required for CRT display is stored in this memory.

Next, the blanking circuit block is composed of a 4 MHz oscillator composed of X2 and the inverter (U15), shift register (U14), inverter (U15) and OR (U5). It outputs the Blanking (R/O BLK), request (R/O REQ) and unblanking (R/O UBL) signals. The signals are output at the timing synchronized with the CLK signal from the decoder to X latch (U7) and Y latch (U8) and used to switch the display from waveform to character or from character to waveform and to clear the trace during switching. R/O BLK is used to clear the trace, R/O REQ is used to switch display between characters and traces and R/O UBL is used to illuminate a single dot in the character.

In synchronism with the signal outputs from the blanking circuit block, the character data output block outputs R/O-X (character dot position in Horizontal direction) and R/O-Y (character dot position in Vertical direction). The character data is sent from the memory (U2) described above to the X latch and Y latch, and the position data is sent through the address bus.

These data are latched simultaneously, and the latched data are input to the respective 8-bit D/A converters (U9, U10) to be converted into analog signals. After conversion, the obtained analog signals are input to analog switches U11 and U12, output from opamp U13 as signals with 0 to 4 V amplitudes, and sent respectively to the final amp.

The analog switches are supplied with the cursor voltages, which are used to determine the CRT screen position in case the cursor output is required. The relationship between these voltages and the CRT screen display is as shown in the following diagram.



In addition, there is an external 12-bit A/D converter for use as the means to input character data. This converts the cursor voltages , sweep time voltage, DTP voltage, etc., which require a certain resolution into digital data. The A/D converter is formed with an analog switch (U17), comparator (U3) and D/A converter (U16) for A/D conversion with the successive comparison method.

CIRCUIT DESCRIPTION

V-MODE LOGIC

When CH1 is selected with V-MODE

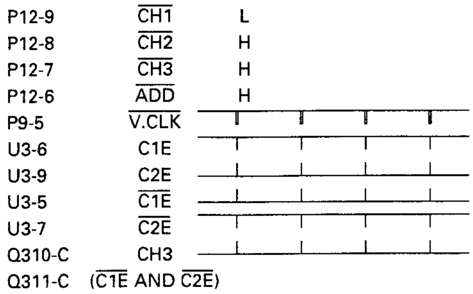

P12-9 $\overline{\text{CH1}}$ L
P12-8 $\overline{\text{CH2}}$ H
P12-7 $\overline{\text{CH3}}$ H
P12-6 $\overline{\text{ADD}}$ H
P9-5 $\overline{\text{V.CLK}}$
U3-6 C1E
U3-9 C2E
U3-5 $\overline{\text{C1E}}$
U3-7 $\overline{\text{C2E}}$
Q310-C CH3
Q311-C ($\overline{\text{C1E}}$ AND $\overline{\text{C2E}}$)

Fig. 1-a

When CH2 is selected with V-MODE

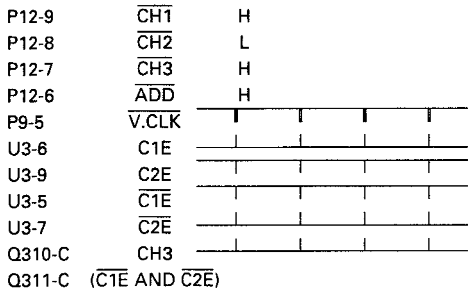

P12-9 $\overline{\text{CH1}}$ H
P12-8 $\overline{\text{CH2}}$ L
P12-7 $\overline{\text{CH3}}$ H
P12-6 $\overline{\text{ADD}}$ H
P9-5 $\overline{\text{V.CLK}}$
U3-6 C1E
U3-9 C2E
U3-5 $\overline{\text{C1E}}$
U3-7 $\overline{\text{C2E}}$
Q310-C CH3
Q311-C ($\overline{\text{C1E}}$ AND $\overline{\text{C2E}}$)

Fig. 1-b

When CH3 is selected with V-MODE

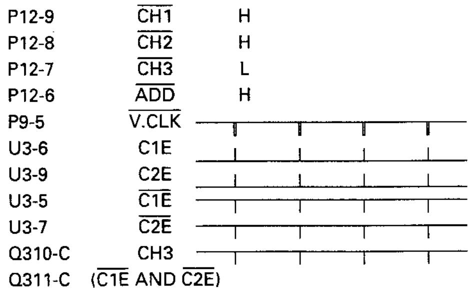

P12-9 $\overline{\text{CH1}}$ H
P12-8 $\overline{\text{CH2}}$ H
P12-7 $\overline{\text{CH3}}$ L
P12-6 $\overline{\text{ADD}}$ H
P9-5 $\overline{\text{V.CLK}}$
U3-6 C1E
U3-9 C2E
U3-5 $\overline{\text{C1E}}$
U3-7 $\overline{\text{C2E}}$
Q310-C CH3
Q311-C ($\overline{\text{C1E}}$ AND $\overline{\text{C2E}}$)

Fig. 1-c

CIRCUIT DESCRIPTION

When ADD is selected with V-MODE

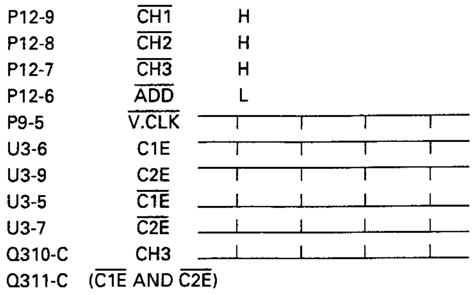

P12-9 $\overline{\text{CH1}}$ H
P12-8 $\overline{\text{CH2}}$ H
P12-7 $\overline{\text{CH3}}$ H
P12-6 $\overline{\text{ADD}}$ L
P9-5 $\overline{\text{V.CLK}}$
U3-6 C1E
U3-9 C2E
U3-5 $\overline{\text{C1E}}$
U3-7 $\overline{\text{C2E}}$
Q310-C CH3
Q311-C ($\overline{\text{C1E}}$ AND $\overline{\text{C2E}}$)

Fig. 1-d

There are 16 combinations obtained from the 4 states, and it is abnormal if all of these are "H".
When more than one combination are used, the state is switched at the negative going of $\overline{\text{V.CLK}}$ in the order shown below:

$$\rightarrow \text{CH1} \rightarrow \text{CH3} \rightarrow \text{CH2} \rightarrow \text{ADD} \rightarrow$$

SWEEP CODE		A SWEEP					B SWEEP					VOLTAGE RANGE (V)	VOLTAGE (V)	VOLTAGE (V)
	S301	a	b	c	d	e	f	g	h	j	k			
SWEEP TIME/DIV	0.5s											< 0.168	Approx. -7.6	-12
	0.2s	○										0.168 ~ 0.301	Approx. -6.9	↓
	0.1s		○									0.302 ~ 0.504	Approx. -5.9	
	50ms			○					○			0.505 ~ 0.704	↓	
	20ms	○		○			○		○			0.705 ~ 0.838		
	10ms		○	○				○	○			0.839 ~ 1.044		
	5ms				○					○		1.045 ~ 1.247	↓	
	2ms	○			○		○			○		1.248 ~ 1.381		
	1ms		○		○			○		○		1.382 ~ 1.584		
	0.5ms			○	○				○	○		1.585 ~ 1.784	↓	
	0.2ms	○		○	○		○		○	○		1.785 ~ 1.918		
	0.1ms		○	○	○			○	○	○		1.919 ~ 2.124		
	50µs					○					○	2.125 ~ 2.327	↓	0
	20µs	○				○	○				○	2.328 ~ 2.461		↓
	10µs		○			○		○			○	2.462 ~ 2.664		
	5µs			○		○			○		○	2.665 ~ 2.864	↓	
	2µs	○		○		○	○		○		○	2.865 ~ 2.998		
	1µs		○	○		○		○	○		○	2.999 ~ 3.204		
	0.5µs				○	○				○	○	3.205 ~ 3.407	↓	
	0.2µs	○			○	○	○			○	○	3.408 ~ 3.541		
	0.1µs		○		○	○		○		○	○	3.542 ~ 3.743		
	0.05µs			○	○	○			○	○	○	> 3.743	Approx. -7.6	
CHECK POINTS		X73-2070-00										P11-3, 2	P10-9, 4	P10-6, 1
		X77-1870-00										P23-11, 13		

Fig. 2

CIRCUIT DESCRIPTION

• CH1 ATT & CH2 ATT voltage check table

V-Range (/div)	Voltage range (V)
5V	4.124 ~ 4.450
2V	3.790 ~ 4.123
1V	3.456 ~ 3.789
0.5V	3.130 ~ 3.455
0.2V	2.804 ~ 3.129
0.1V	2.470 ~ 2.803
50mV	2.136 ~ 2.469
20mV	1.810 ~ 2.135
10mV	1.484 ~ 1.809
5mV	1.150 ~ 1.483
2mV	0.816 ~ 1.149
1mV	0.490 ~ 0.815

Fig. 3

CH1 CHECK POINT P23-4
CH2 CHECK POINT P23-6

• UNCAL voltage check table

CH1 CAL	CH2 CAL	SWP CAL	Voltage range (V)
>	>	>	4.406 ~ 4.860
>	>	CAL	3.777 ~ 4.405
>	CAL	>	3.147 ~ 3.776
>	CAL	CAL	2.518 ~ 3.146
CAL	>	>	1.888 ~ 2.517
CAL	>	CAL	1.257 ~ 1.887
CAL	CAL	>	0.626 ~ 1.256
CAL	CAL	CAL	0.156 ~ 0.625

Fig. 4

CHECK POINT P23-15

• SWEEP CODE voltage check table

SWEEP TIME (/div)	Voltage range (V)
50ns	≧ 3.744
0.1µs	3.542 ~ 3.743
0.2µs	3.408 ~ 3.541
0.5µs	3.205 ~ 3.407
1µs	2.999 ~ 3.204
2µs	2.865 ~ 2.998
5µs	2.665 ~ 2.864
10µs	2.462 ~ 2.664
20µs	2.328 ~ 2.461
50µs	2.125 ~ 2.327
0.1ms	1.919 ~ 2.124
0.2ms	1.785 ~ 1.918
0.5ms	1.585 ~ 1.784
1ms	1.382 ~ 1.585
2ms	1.248 ~ 1.381
5ms	1.045 ~ 1.247
10ms	0.839 ~ 1.044
20ms	0.705 ~ 0.838
50ms	0.505 ~ 0.704
0.1s	0.302 ~ 0.504
0.2s	0.168 ~ 0.301
0.5s	≦ 0.167

Fig. 5

CHECK POINT
A SWEEP P23-11
B SWEEP P23-13

• V-MODE level check table

V-MODE								
CH1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
ADD	OFF	OFF	ON	ON	OFF	OFF	ON	ON
CH2	OFF	OFF	OFF	OFF	ON	ON	ON	ON
	↓	↓	↓	↓	↓	↓	↓	↓
$\overline{\text{CH1}}$	L	L	H	L	H	L	H	L
$\overline{\text{ADD}}$	H	H	L	L	H	H	L	L
$\overline{\text{CH2}}$	H	H	H	H	L	L	L	L
	↓	↓	↓	↓	↓	↓	↓	↓
Display	CH1 (CH3)*	CH1	CH1 + CH2	CH1 + CH2	CH2	CH1 CH2	CH1 + CH2	CH1 + CH2

* CH3 display is used when only CH3 is ON.

Fig. 6

CHECK POINT P23-4
P23-10
P24-6

• MAG level check

ON	OFF
L	H

CHECK POINT P23-17

Fig. 7

• CH2 INV level check table

ON	OFF
L	H

CHECK POINT P23-12

Fig. 8

• B TRIG'D level check table

ON	OFF
L	H

CHECK POINT P23-19

Fig. 9

• H DISPLAY voltage check table

	Output voltage range (V)
A	≧ 2.085
ALT	1.381 ~ 2.084
B	0.704 ~ 1.380
X-Y	≦ 0.703

CHECK POINT P23-20

Fig. 10

• Probe voltage check table

	Output voltage range (V)
1/1	≧ 4.197
1/10	3.176 ~ 4.196
1/100	≦ 3.175

CHECK POINT
CH1PB : P23-3
CH2PB : P23-5

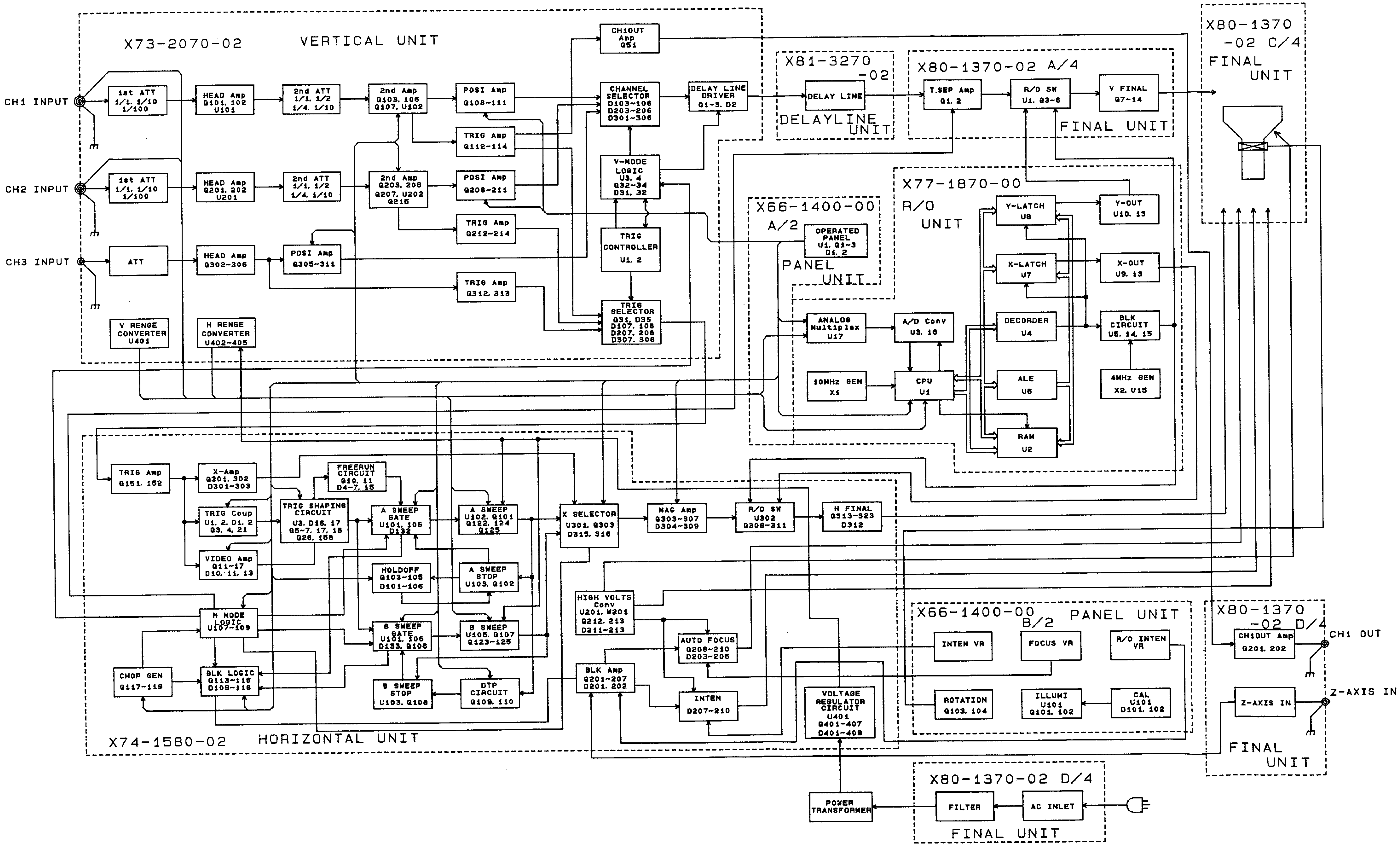
Fig. 11

• CURSOR voltage check table

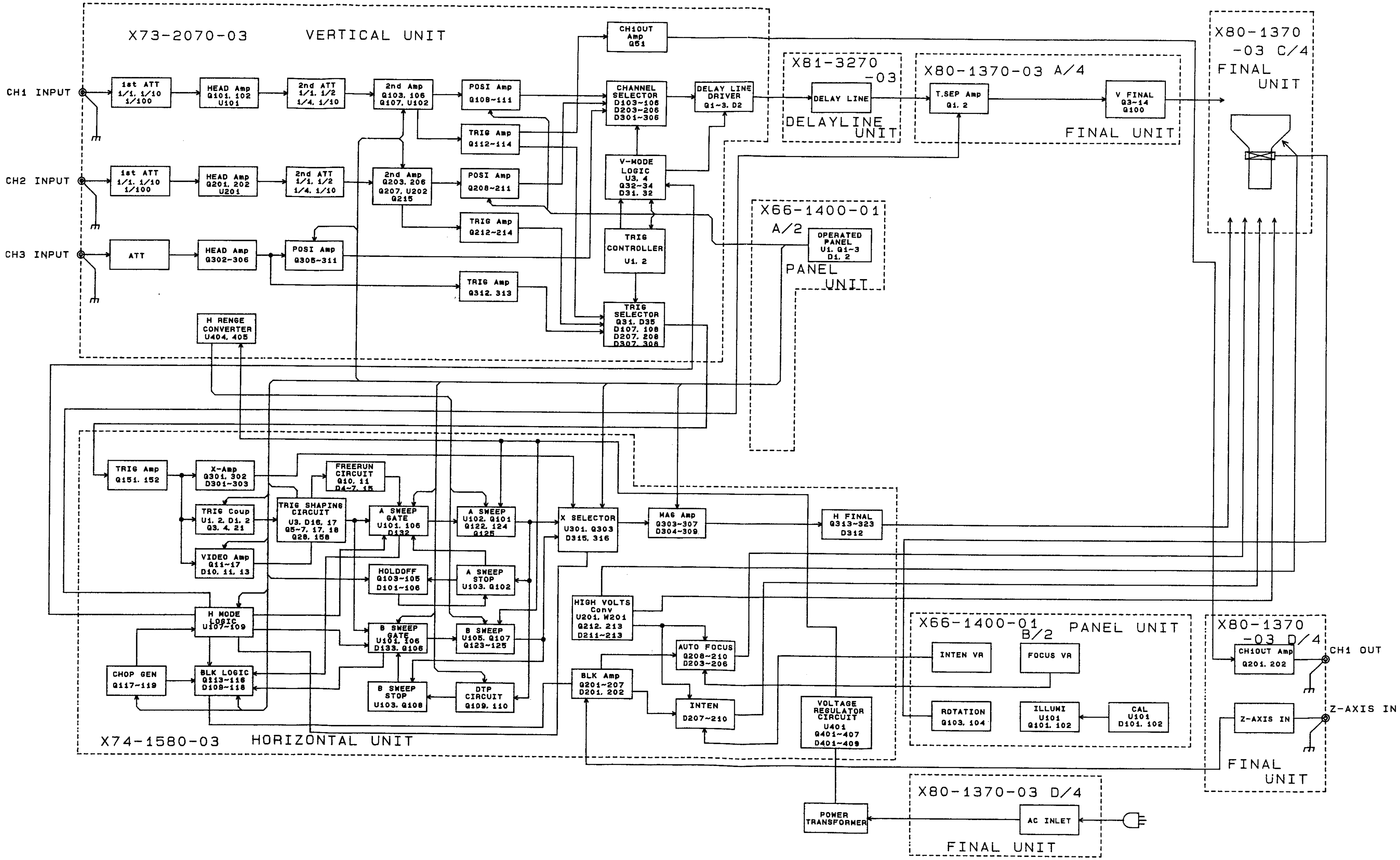
ON	OFF
L	H

Fig. 12

CS-5270 BLOCK DIAGRAM


X73-2070-02
VERTICAL UNIT
CH1 INPUT
CH2 INPUT
CH3 INPUT
1st ATT 1/1, 1/10 1/100
HEAD Amp Q101, 102 U101
2nd ATT 1/1, 1/2 1/4, 1/10
2nd Amp Q103, 106 Q107, U102
POSI Amp Q108~111
TRIG Amp Q112~114
1st ATT 1/1, 1/10 1/100
HEAD Amp Q201, 202 U201
2nd ATT 1/1, 1/2 1/4, 1/10
2nd Amp Q203, 206 Q207, U202 Q215
POSI Amp Q208~211
TRIG Amp Q212~214
ATT
HEAD Amp Q302~306
POSI Amp Q305~311
TRIG Amp Q312, 313
CH1OUT Amp Q51
CHANNEL SELECTOR D103~106 D203~206 D301~306
DELAY LINE DRIVER Q1~3, D2
V-MODE LOGIC U3, 4 Q32~34 D31, 32
TRIG CONTROLLER U1, 2
TRIG SELECTOR Q31, D35 D107, 108 D207, 208 D307, 308
V RENGE CONVERTER U401
H RENGE CONVERTER U402~405
X81-3270 -02
DELAY LINE
DELAYLINE UNIT
X80-1370-02 A/4
T.SEP Amp Q1, 2
R/O SW U1, Q3~6
V FINAL Q7~14
FINAL UNIT
X80-1370 -02 C/4
FINAL UNIT
X66-1400-00 A/2
OPERATED PANEL U1, Q1~3 D1, 2
PANEL UNIT
X77-1870-00
R/O UNIT
Y-LATCH U8
Y-OUT U10, 13
X-LATCH U7
X-OUT U9, 13
ANALOG Multiplex U17
A/D Conv U3, 16
DECORDER U4
BLK CIRCUIT U5, 14, 15
10MHz GEN X1
CPU U1
ALE U6
4MHz GEN X2, U15
RAM U2
TRIG Amp Q151, 152
X-Amp Q301, 302 D301~303
FREERUN CIRCUIT Q10, 11 D4~7, 15
TRIG Coup U1, 2, D1, 2 Q3, 4, 21
TRIG SHAPING CIRCUIT U3, D16, 17 Q5~7, 17, 18 Q26, 156
A SWEEP GATE U101, 106 D132
A SWEEP U102, Q101 Q122, 124 Q125
X SELECTOR U301, Q303 D315, 316
MAG Amp Q303~307 D304~309
R/O SW U302 Q308~311
H FINAL Q313~323 D312
VIDEO Amp Q11~17 D10, 11, 13
HOLDOFF Q103~105 D101~106
A SWEEP STOP U103, Q102
H MODE LOGIC U107~109
B SWEEP GATE U101, 106 D133, Q106
B SWEEP U105, Q107 Q123~125
HIGH VOLTS Conv U201, W201 Q212, 213 D211~213
AUTO FOCUS Q208~210 D203~206
CHOP GEN Q117~119
BLK LOGIC Q113~116 D109~118
B SWEEP STOP U103, Q106
DTP CIRCUIT Q109, 110
BLK Amp Q201~207 D201, 202
INTEN D207~210
VOLTAGE REGULATOR CIRCUIT U401 Q401~407 D401~409
X74-1580-02
HORIZONTAL UNIT
X66-1400-00 B/2
PANEL UNIT
INTEN VR
FOCUS VR
R/O INTEN VR
ROTATION Q103, 104
ILLUMI U101 Q101, 102
CAL U101 D101, 102
X80-1370 -02 D/4
CH1OUT Amp Q201, 202
CH1 OUT
Z-AXIS IN
Z-AXIS IN
FINAL UNIT
X80-1370-02 D/4
POWER TRANSFORMER
FILTER
AC INLET
FINAL UNIT

CS-5275 BLOCK DIAGRAM


X73-2070-03 VERTICAL UNIT
CH1 INPUT
CH2 INPUT
CH3 INPUT
1st ATT 1/1, 1/10 1/100
HEAD Amp Q101, 102 U101
2nd ATT 1/1, 1/2 1/4, 1/10
2nd Amp Q103, 106 Q107, U102
POSI Amp Q108~111
TRIG Amp Q112~114
CH1OUT Amp Q51
CHANNEL SELECTOR D103~106 D203~206 D301~306
DELAY LINE DRIVER Q1~3, D2
1st ATT 1/1, 1/10 1/100
HEAD Amp Q201, 202 U201
2nd ATT 1/1, 1/2 1/4, 1/10
2nd Amp Q203, 206 Q207, U202 Q215
POSI Amp Q208~211
TRIG Amp Q212~214
V-MODE LOGIC U3, 4 Q32~34 D31, 32
ATT
HEAD Amp Q302~306
POSI Amp Q305~311
TRIG Amp Q312, 313
TRIG CONTROLLER U1, 2
TRIG SELECTOR Q31, D35 D107, 108 D207, 208 D307, 308
H RENGE CONVERTER U404, 405
X81-3270-03
DELAY LINE
DELAYLINE UNIT
X80-1370-03 A/4
T.SEP Amp Q1, 2
V FINAL Q3~14 Q100
FINAL UNIT
X80-1370-03 C/4
FINAL UNIT
X66-1400-01 A/2
OPERATED PANEL U1, Q1~3 D1, 2
PANEL UNIT
TRIG Amp Q151, 152
X-Amp Q301, 302 D301~303
FREERUN CIRCUIT Q10, 11 D4~7, 15
TRIG Coup U1, 2, D1, 2 Q3, 4, 21
TRIG SHAPING CIRCUIT U3, D16, 17 Q5~7, 17, 18 Q28, 158
A SWEEP GATE U101, 106 D132
A SWEEP U102, Q101 Q122, 124 Q125
X SELECTOR U301, Q303 D315, 316
MAG Amp Q303~307 D304~309
H FINAL Q313~323 D312
VIDEO Amp Q11~17 D10, 11, 13
HOLDOFF Q103~105 D101~106
A SWEEP STOP U103, Q102
H MODE LOGIC U107~109
B SWEEP GATE U101, 106 D133, Q106
B SWEEP U105, Q107 Q123~125
HIGH VOLTS Conv U201, W201 Q212, 213 D211~213
AUTO FOCUS Q208~210 D203~206
CHOP GEN Q117~119
BLK LOGIC Q113~116 D109~118
B SWEEP STOP U103, Q108
DTP CIRCUIT Q109, 110
BLK Amp Q201~207 D201, 202
INTEN D207~210
VOLTAGE REGULATOR CIRCUIT U401 Q401~407 D401~409
X74-1580-03 HORIZONTAL UNIT
X66-1400-01 B/2 PANEL UNIT
INTEN VR
FOCUS VR
ROTATION Q103, 104
ILLUMI U101 Q101, 102
CAL U101 D101, 102
X80-1370-03 D/4
CH1OUT Amp Q201, 202
CH1 OUT
Z-AXIS IN
Z-AXIS IN
FINAL UNIT
X80-1370-03 D/4
POWER TRANSFORMER
AC INLET
FINAL UNIT

ADJUSTMENT

To obtain the best performance, periodically calibrate the unit. Sometimes, only one mode need be calibrated, while at other times, all modes should be calibrated. When one mode is calibrated, it must be noted that the other modes may be affected. When calibrating all modes, perform the calibration in the specified sequence.

The following calibration required an accurate measuring instrument and an insulated adjusting flat blade screwdriver. If they are not available, contact your dealer. For optimum adjustment, turn the power on and warm up the scope sufficiently (more than 30 minutes) before starting.

Before calibrating the scope, check the power supply voltage.

TEST EQUIPMENT REQUIRED

The following instrument or their equivalent should be used for making adjustment.

Test Equipment	Model	Minimum Specification
Digital Multi-Meter	DL-712 (KENWOOD)	Impedance: More than 10 MΩ, Measuring range: 0.2 V to 1000 V
Sine-Wave Generator	651 B (YHP)	Frequency: 10 Hz to 10 MHz, constant voltage over tuning range
Sine-Wave Generator	SG-503 (Tektronix)	Frequency: 50 kHz to 100 MHz, Output impedance: 50 Ω, constant voltage over tuning range
Square-Wave Generator	PG-506 (Tektronix)	Output signal: 1 kHz, Amplitude: 10 mVp-p to 10 Vp-p, Accuracy: within ±1%, Rise time: 35ns or less 100 kHz, Rise time: 1 ns or less
Q Meter	4343B (YHP)	–
Color Pattern Generator	CG-921 (KENWOOD)	–
Oscilloscope	CS-6040 (KENWOOD)	Sensitivity: more than 1 mV Frequency response: More than 150 MHz
Time-Marker Generator	TG-501 (Tektronix)	Time mark: 0.5 s to 0.1μs repetive waveform
High-Voltage Probe	–	Input Impedance: 1000 MΩ
Termination	–	Impedance: 50 Ω Accuracy: within 3%
Termination	–	3 watts type impedance: 50 Ω
Attenuator	–	−20 dB attenuation (50 Ω)

Table 1

PREPARATION FOR ADJUSTMENT

Control Settings

The control settings listed below must be used for each adjustment procedure.

Exceptions to these settings will be noted as they occur. After completing a adjustment, return the controls to the following settings.

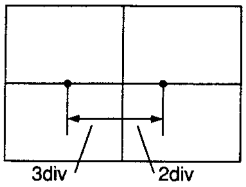
NAME OF KNOBS	POSITION
INTEN	12 o'clock
FOCUS	Optimum position
CH1, CH2, CH3 ⬍ POSITION	Mechanical center
◄► POSITION	Mechanical center
×10 MAG	OFF
VARIABLE, H.VARIABLE (VOLTS/DIV, SWEEP TIME/DIV)	CAL
AC-GND-DC (CH1 and CH2)	DC (GND at no signal)
VERTICAL MODE	CH1
HORIZONTAL MODE	A
TRIGGERING COUPLING	AC
TRIGGERING SOURCE	VERT MODE
TRIGGERING MODE	AUTO
TRIGGERING LEVEL	Mechanical center
VOLTS/DIV (CH1 and CH2)	5 V/DIV
A/B SWEEP TIME/DIV	0.5 s/50 ms
TRACE SEP	Fully CCW
HOLD OFF	Fully CCW
SLOPE	■ +

Table 2

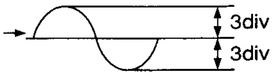
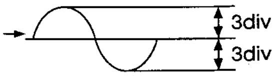
ADJUSTMENT

Item	Adjustment	P.C.B.	Procedure
Operating voltage	VR4 VR303	X80-1370 X74-1580	V.MODE: CH1, CH2. AC-DC: GND (both CH), VOLTS: 10 mV (both CH), H.DISP: X-Y, R/O: OFF 1) Move the spot to the CRT center by operating the POSI controls. 2) Attach the multimeter probes across P5-1 and GND of X80-1370 and adjust VR4 to the voltage 82.5 V. 3) Attach the multimeter probes across P7-1 and GND of X74-1580 and adjust VR303 so that the voltage is 70 V. 4) Attach the probe to P7-4 and ensure that the voltage reading is approx. 70 V.
Focus Center and ASTIG	VR201	X74-1580	V.MODE: CH1, CH2, AC-DC: GND (both CH), VOLTS: 10 mV (both CH), H.DISP: X-Y 1) Move the spot to the CRT center by operating the POSI controls. 2) Adjust the spot to the best point with FOCUS on the panel and ASTIG (VR305). 3) Set FOCUS on the panel to the 12:00 position and adjust VR201 to move the spot to the best point.
Intensity	VR202	X74-1580	V.MODE: CH1, CH2. AC-DC: GND (both CH), VOLTS: 10 mV (both CH), H.DISP: X-Y 1) Set INTEN to the 10:00 position. 2) At the 10:00 position, adjust so that the spot disappears.
Cursor Y-Gain and POSI * In case the R/O unit is not used, ignore this item.	VR3 (Gain) VR2 (POSI)	X80-1370	V.MODE: CH1, CH2. AC-DC: GND (both CH), VOLTS: 10 mV (both CH), H.DISP: A, R/O: ON, A.SWEEP: 1 ms 1) Set the R/O display to 6.00 by operating the cursor POSI controls. 2) Adjust VR3 and VR2 so that the interval between cursors is 6 div. 3) Maximize the cursor interval by operating the cursor POSI controls. 4) Adjust VR2 to make it uniform.
Cursor X-Gain and POSI * In case the R/O unit is not used, adjust only VR304. The VR can be used to adjust the length of the SWEEP TIME 1 ms trace.	VR304 (Gain) VR306 (POSI)	X74-1580	V.MODE: CH1, CH2. AC-DC: GND (both CH), VOLTS: 10 mV (both CH), H.DISP: A, R/O: ON (1/△T), A.SWEEP: 1 ms 1) Set the R/O display to 8.00 by operating the cursor POSI controls. 2) Adjust VR304 and V306 so that the cursor interval is 8 div.. 3) Maximize the cursor interval by operating the cursor POSI controls. 4) Adjust VR306 to make it uniform. In case the R/O unit is not used, VR304 is to be adjusted in the SWEEP TIME 1 ms adjustment.
CH1 Gain	VR1 (10 mV) VR102 (1 mV)	X80-1370 X73-2070	V.MODE: CH1, AC-DC: DC, H.DISP: A, VOLTS: 10 mV, VARI: CAL. 1) Input a 50 mV square wave signal. 2) Adjust so that the amplitude is 5 div. (10 mV range) 3) Switch VOLTS to 1 mV and input a 5 mV square wave signal. 4) Adjust so that the amplitude is 5 div. (1 mV range)
CH2 Gain	VR207 (10 mV) VR202 (1 mV)	X73-2070	V.MODE: CH2, AC-DC: DC, H DISP: A, VOLTS: 10 mV, VARI: CAL. 1) Input a 50 mV square wave signal. 2) Adjust so that the amplitude is 5 div. (10 mV range) 3) Switch VOLTS to 1 mV and input a 5 mV square wave signal. 4) Adjust so that the amplitude is 5 div. (1 mV range)

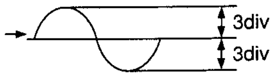
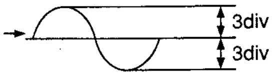
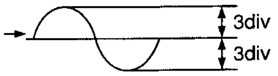
ADJUSTMENT

Item	Adjustment	P.C.B.	Procedure
X-Gain * In case the R/O unit is not used, do not adjust this item now but adjust after H.POSI.	VR308	X74-1580	H.DISP: X-Y, AC-DC: DC VOLTS: 10 mV, VARI: CAL. 1) Input a 50 mV square wave signal to CH2. 2) Adjust so that the amplitude is 5 div. (10 mV range) * Make the adjustment to 5 div., at the CRT center. 
CH3 Gain	VR301	X73-2070	V.MODE: CH3, H.DISP: A 1) Input a 0.5 V square wave signal. 2) Adjust so that the amplitude is 5 div. (0.1 V range)
CH1 Step ATT Balance	VR103	X73-2070	V.MODE: CH1, AC-DC: GND (both CH) VOLTS: 5 mV (both CH) H.DISP: A 1) Adjust so that the trance does not move when VOLTS is switched from 5 mV to 2 mV. * Adjust after switching to 2 mV with reference to the 5 mV position.
CH1 VARIABLE Balance	VR104	X73-2070	V.MODE: CH1, AC-DC: GND (both CH) VOLTS: 5 mV (both CH) H.DISP: A Adjust by setting VARIABLE to the MIN (fully counterclockwise) position with reference to the MAX (CAL) position. * Ensure that the trace does not move when VARIABLE is switched between MIN ↔ MAX.
CH2 Step ATT Balance	VR203	X73-2070	V.MODE: CH2, AC-DC: GND, VOLTS: 5 mV, H.DISP: A. 1) Adjust so that the trace does not move when VOLTS is switched from 5 mV to 2 mV. * Adjust after switching to 2 mV with reference to the 5 mV position.
CH2 VARIABLE Balance	VR204	X73-2070	V.MODE: CH2, AC-DC: GND, VOLTS: 5 mV, H.DISP: A. 1) Adjust by setting VARIABLE to the MIN (fully counterclockwise) position with reference to the MAX (CAL) position. * Ensure that the trace does not move when VARIABLE is switched between MIN ↔ MAX.
CH2 INV Balance	VR208	X73-2070	V.MODE: CH2, AC-DC: GND, VOLTS: 5 mV, H.DISP: A. 1) Adjust so that the trace does not move when CH2 INV is switched ON-OFF. 2) Check CH2 STEP ATT BAL and VARI BAL and, if any is deviated, re-adjust following the adjustment procedure.
ADD POSI	VR1	X73-2070	V.MODE: CH1, ADD, AC-DC: GND, VOLTS: 5 mV H.DISP: A 1) Superimpose the two displayed traces by operating CH2 POSI. 2) Switch V.MODE CH2 ON. (After this, CH1, CH2 and ADD of V.MODE are ON.) 3) Superimpose the two displayed traces b operating CH1 POSI. 4) Adjust the trace to the center of scale. (The CRT seems to display a single trace but it actually consists of a superimposition of 3 traces.)

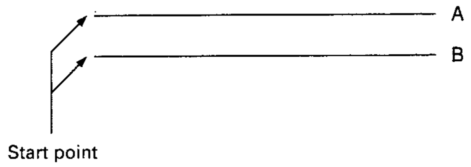
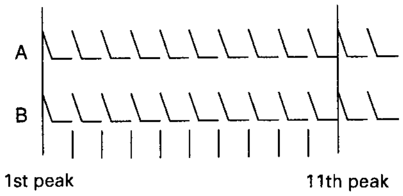
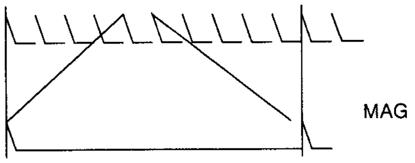
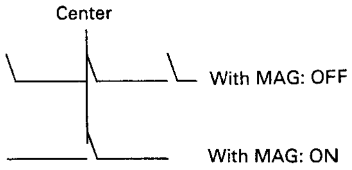
ADJUSTMENT

Item	Adjustment	P.C.B.	Procedure
V.POSI Center	VR106 (CH1) VR206 (CH2) VR302 (CH3)	X73-2070	V.MODE: CH1, CH2, CH3, VOLTS: 5 mV, H.DISP: A, AC-DC: GND. 1) Set POSI of each CH to the 12:00 position. 2) Adjust the trace of each CH to the scale center.
CH1 Waveform Shaping	TC102 (0.1 V) TC104 (1 V)	X73-2070	V.MODE: CH1, AC-DC: DC, VARI: CAL, VOLTS: 10 mV (ideal waveform), H.DISP: A. 1) Input a 1 kHz square wave to the CH1 input. 2) Adjust so that the waveforms at 0.1 V and 1 V are flat.
CH2 Waveform Shaping	TC202 (0.1 V) TC204 (1 V)	X73-2070	V.MODE: CH2, AC-DC: DC, VARI: CAL, VOLTS: 10 mV (ideal waveform), H.DISP: A. 1) Input a 1 kHz square wave to the CH2 input. 2) Adjust so that the waveforms at 0.1 V and 1 V are flat.
CH3 Waveform Shaping	TC301	X73-2070	V.MODE: CH3, H.DISP: A. 1) Input a 1 kHz square wave to the CH1 input and adjust so that the waveform is flat.
Input Capacity	TC101 (0.1 V) TC103 (1 V)	X73-2070	V.MODE: CH1, AC-DC: DC, VARI: CAL, VOLTS: 10 mV (reference), H.DISP: A. 1) Connect a capacity meter to the CH1 input. 2) Measure the capacity of the 10 mV range. (No more than 25 p) 3) At 0.1 V and 1 V, adjust to obtain the same values as 10 mV.
Input Capacity	TC201 (0.1 V) TC203 (1 V)	X73-2070	V.MODE: CH2 AC-DC: DC, VARI: CAL, VOLTS: 10 mV (reference), H.DISP: A. 1) Connect a capacity meter to the CH2 input. 2) Measure the capacity of the 10 mV range. (No more than 25 p) 3) At 0.1 V and 1 V, adjust to obtain the same values as 10 mV.
FIX Level	VR2	X74-1580	V.MODE: CH1, AC-DC: DC, VOLTS: 0.1 V, TRIG MODE: FIX, SWEEP T: 0.2 ms. 1) Input 1 kHz sine wave to CH1 and set it so that it extends by 3 div., above and below the scale center line. 2) Adjust so that the waveform starts from the scale center line when SLOPE is switched between +/-. 3) Set the amplitude to 1 div., switch SLOPE to + and -, and ensure that triggering is applied. (If it is not applied, re-adjust now.) 
TRIG Level	VR1	X74-1580	V.MODE: CH1, AC-DC: DC, VOLTS: 0.1 V, TRIG MODE: AUTO, SWEEP T: 0.2 ms. 1) Input 1 kHz sine wave to CH1 and set it so that it extends by 3 div., above and below the scale center line. 2) Set TRIG LEVEl to the 12:00 position and adjust so that the waveform starts from the scale center line. 

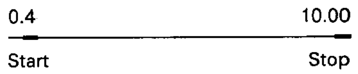
ADJUSTMENT

Item	Adjustment	P.C.B.	Procedure
CH1 TRIG DC Coupling	VR105	X73-2070	V.MODE: CH1, AC-DC: DC, VOLTS: 0.1 V, TRIG MODE: AUTO, SWEEP T: 0.2 ms, COUPLING: AC. 1) Input 1 kHz sine wave to CH1 and set it so that it extends by 3 div., above and below the scale center line. 2) Adjust TRIG LEVEL so that the waveform starts from the scale center line. 3) Switch COUPLING to DC and adjust so that the waveform starts from the scale center line.  Align the start with the center.
CH2 TRIG DC Coupling	VR205	X73-2070	V.MODE: CH2, AC-DC: DC, VOLTS: 0.1 V, TRIG MODE: AUTO, SWEEP T: 0.2 ms, COUPLING: AC. 1) Input 1 kHz sine wave to CH2 and set it so that it extends by 3 div., above and below the scale center line. 2) Adjust TRIG LEVEL so that the waveform starts from the scale center line. 3) Switch COUPLING to DC and adjust so that the waveform starts from the scale center line.  Align the start with the center.
CH3 TRIG DC Coupling	VR303	X73-2070	V.MODE: CH3, TRIG MODE: AUTO, SWEEP T: 0.2 ms. 1) Set the trace to the scale center by operating V.POSI. 2) Input a 1 kHz sine wave to CH1 and set it so that it extends by 3 div., above and below the scale center line. (As CH3 is fixed to DC, it may not be triggered at this time. But it can be triggered by adjustment.) 3) Adjust so that the waveform starts from the scale center line.  Align the start with the center.
TRIG ADD	VR31	X73-2070	V.MODE: CH1, CH2, AC-DC: DC, VOLTS: 0.1 V, TRIG MODE: AUTO, SWEEP T: 0.2 ms, COUPLING: AC 1) Set the traces of each CH to the scale center position by operating V.POSI. 2) Switch CH1 and CH2 to OFF and ADD to ON. 3) Input a 1 kHz sine wave to CH1 and set it so that it extends by 3 div., above and below the scale center line. 4) Adjust TRIG LEVEL so that the waveform starts from the scale center line. 5) Switch COUPLING to DC and adjust so that the waveform starts from the scale center line.

ADJUSTMENT

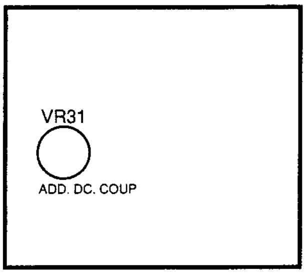
Item	Adjustment	P.C.B.	Procedure
A/B sweep start points	VR102	X74-1580	V.MODE: CH1, AC-DC: DC, SWEEP TIME: A → 1 ms, B → 0.1 ms, H.DISP: ALT DTM: MIN. (Fully counterclockwise) 1) Adjust so that the start points of A.SWEEP and B.SWEEP are aligned. 
A, B SWEEP TIME 1 ms * In case the R/O unit is not used, adjust VR304 alternately so that the total number of marker peals is 12.	VR403 (A, SWEEP) VR402 (B, SWEEP)	X73-2070	SWEEP TIME: A, B → 1 ms, H.DISP: ALT, DTM: MIN (fully counterclockwise). 1) Input a 1 ms marker signal. 2) Adjust so that the marker peak and scale coincides at every div. 
MAG GAIN	VR302	X74-1580	SWEEP TIME: A → 1 ms, H.DISP: A, AC-DC: DC. 1) Input a 1 ms marker signal. 2) Adjust H.POSI so that the marker peak and scale coincides at every div. 3) Switch X10 MAG ON and adjust so that the interval between two peaks is 10 div. 
MAG Center	VR309	X74-1580	SWEEP TIME: A → 1 ms, H.DISP: A, AC-DC: DC. 1) Input a 5 ms marker signal. 2) Adjust H.POSI so that the center peak is aligned with the scale center. 3) Switch X10 MAG ON and adjust so that the center marker peak is aligned with the scale center. (Adjust by repeating a few times.) 4) After the adjustment, switch MAG between ON-OFF and ensure that the center marker peak does not move. 

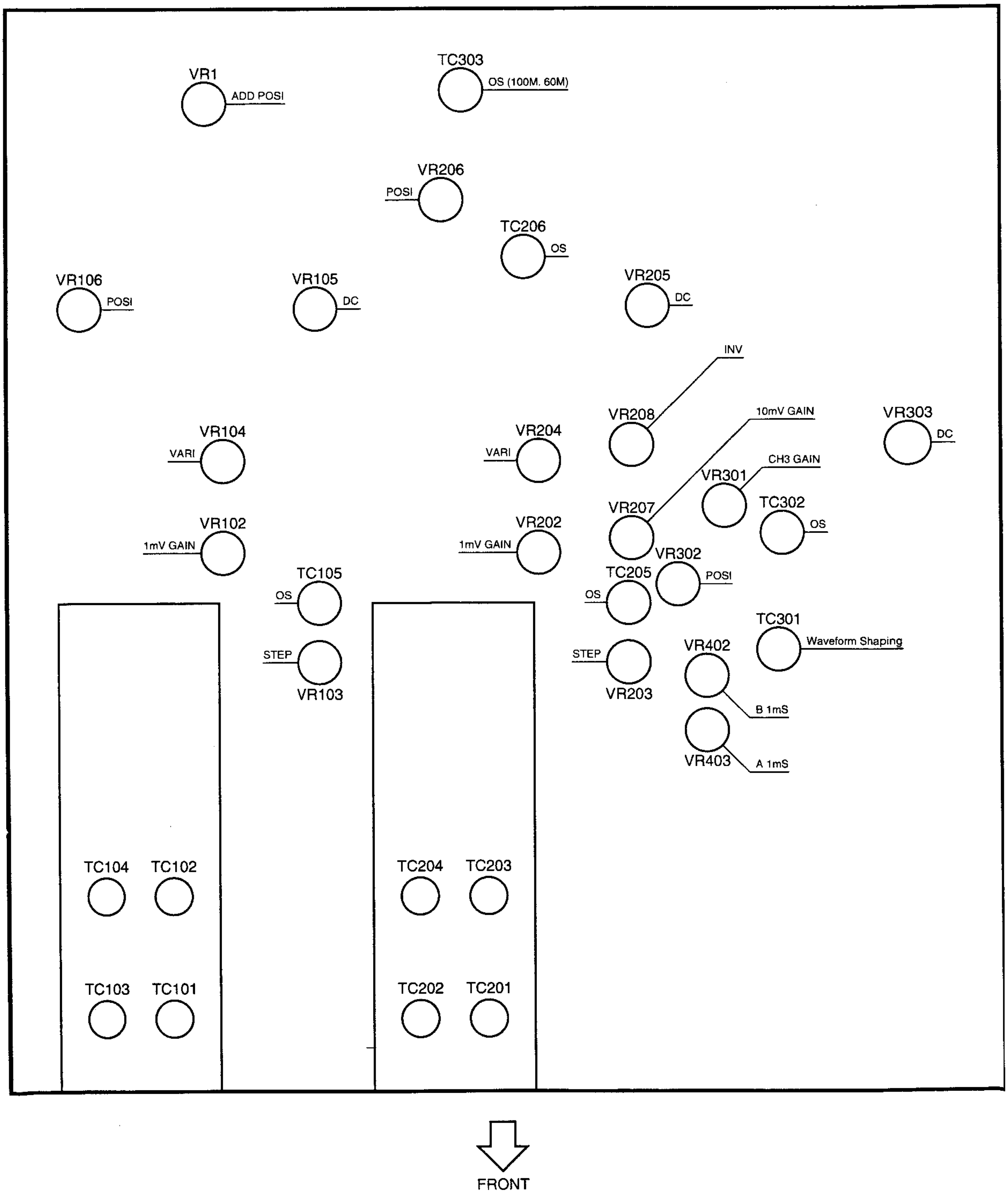
ADJUSTMENT

Item	Adjustment	P.C.B.	Procedure
H. POSITION X-POSITION * In case the R/O unit is not used. Adjust X-GAIN after H.POSI. (Adjustment sequence) 1) H.POSI 2) X-GAIN 3) X-POSI	VR301 (H.POSI) VR307 (X-POSI)	X74-1580	SWEEP TIME: A → 1 ms, H.DISP: A 1) Set the AC-DC switch to GND. (The marker signal can be left input.) 2) Set H.POSI to the 12:00 position. 3) Adjust VR301 so that the trace start point is aligned with the left end of scale. 4) Set H.DISP to X-Y. 5) Adjust VR307 so that the spot comes on the scale center.
A, B SWEEP TIME 1 μs	TC101 (A, SWEEP) TC102 (B, SWEEP)	X74-1580	SWEEP TIME: A, B → 1 μs, H.DISP: ALT, DTM: MIN (fully counterclockwise). 1) Input a 1 μs marker signal. 2) Adjust so that the marker peak and scale coincides at every div.
A, SWEEP TIME 0.05 μs	TC301 (A, SWEEP)	X74-1580	SWEEP TIME: A, B → 0.05 μs, H.DISP: ALT, DTM: MIN (fully counterclockwise). 1) Input a 50 ns marker signal. 2) Adjust so that the marker peak and scale coincides at every div.
D.T. POSI * In case the R/O unit is not used: 1. Turn the MAIN and FINE potentiometers fully counterclockwise. 2. Align the of B sweep with 0.2 div. 3. Turn the MAIN and FINE potentiometers fully clockwise. 4. Align the start of B sweep with 10 div. The potentiometers used in the start and stop adjustments are the same.	VR103 (Start) VR104 (Stop)	X74-1580	H.DISP: ALT, AC-DC: GND, A.SWEEP: 1 ms, B.SWEEP: 10 μs 1) Turn the MAIN and FINE potentiometers of D.T.M. control fully counterclockwise. 2) Adjust the R/O display to 0.40 ms with FINE. 3) Adjust VR103 so that the start of B sweep is aligned with 0.4 div., of the scale. 4) Turn the MAIN and FINE potentiometers of D.T.M. control fully clockwise. 5) Adjust the R/O display to 10.00 ms with FINE. 6) Adjust VR104 so that the start of B sweep is aligned with 10.00 div., of the scale. 
CH1 1 MHz square wave	TC1 TC62 TC105	X80-1370 X73-2070	V.MODE: CH1, VOLTS: 10 mV, AC-DC: DC H.DISP: A. 1) Input a 1 MHz square wave to CH1 and set its amplitude to 6 div. 2) Adjust the waveform to the best point. * With the 100 MHz band, provide an overshoot of 0.3 to 0.4 div. * With the 60 MHz band, provide an overshoot of 0.1 to 0.2 div. * With the 40 MHz band, provide an overshoot of 0.1 to 0.2 div. Specification: (Above) 0.5, (Below) 0.5, (Above + Below) = Less than 0.7 div.
CH2 1 MHz square wave	TC205 TC206	X73-2070	V.MODE: CH2, VOLTS: 10 mV, AC-DC: DC H.DISP: A. 1) Input a 1 MHz square wave to CH2 and set its amplitude to 6 div. 2) Adjust the waveform to the best point. 3) Check that the overshoot in each range from 5 mV to 0.1 V is within the specification. (Check both CHs.) * Provide overshoot in the same way as CH1. Specification: Same as CH1.
CH3 1 MHz square wave	TC302 TC303	X73-2070	V.MODE: CH3, H.DISP: A. 1) Input a 1 MHz square wave to CH3 and set its amplitude to 6 div. 2) Adjust the waveform to the best point. * Adjust TC303 for only the 100M and 60M bands. Specification: Same as CH1.

ADJUSTMENT

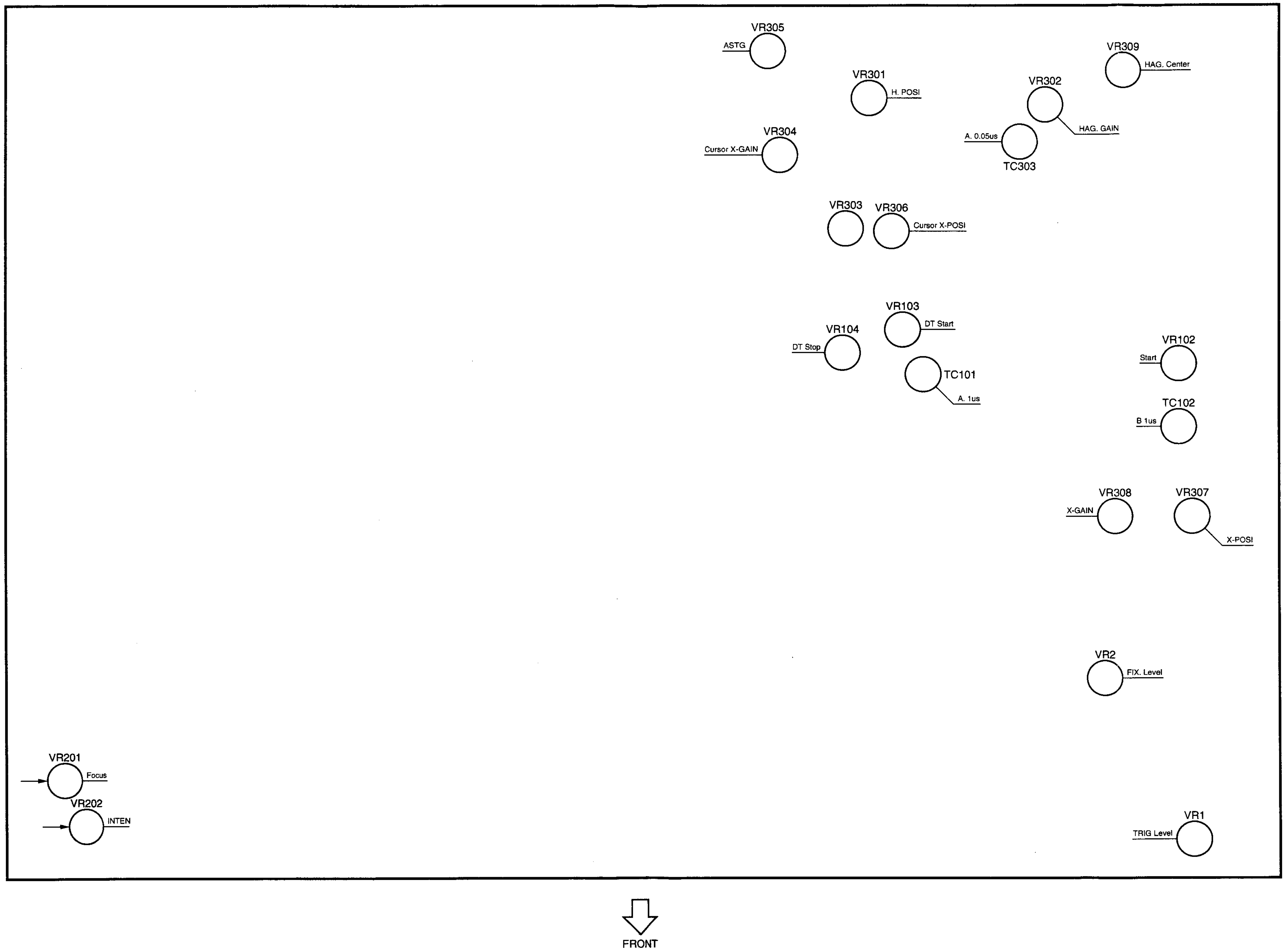
VERTICAL UNIT (X73-2070-0X)


VR31
ADD. DC. COUP


VR1
ADD POSI
TC303
OS (100M. 60M)
VR206
POSI
TC206
OS
VR106
POSI
VR105
DC
VR205
DC
INV
VR208
10mV GAIN
VR303
DC
VR104
VARI
VR204
VARI
CH3 GAIN
VR301
VR207
TC302
OS
VR102
1mV GAIN
VR202
1mV GAIN
VR302
TC105
OS
TC205
OS
POSI
TC301
Waveform Shaping
STEP
VR103
STEP
VR203
VR402
B 1mS
VR403
A 1mS
TC104
TC102
TC204
TC203
TC103
TC101
TC202
TC201
FRONT

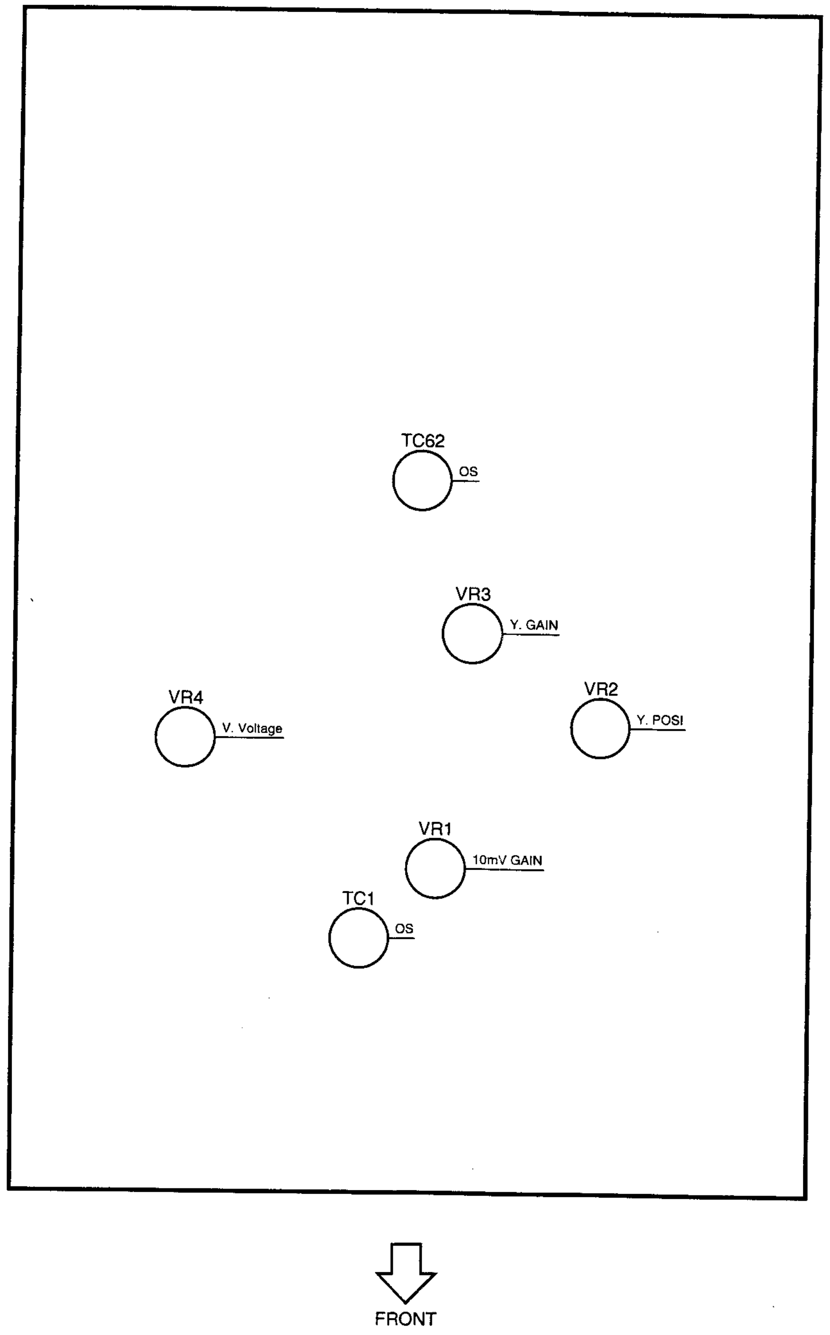
ADJUSTMENT

HORIZONTAL UNIT (X74-1580-0X)


VR305
ASTG
VR309
HAG. Center
VR301
H. POSI
VR302
HAG. GAIN
VR304
Cursor X-GAIN
A. 0.05us
TC303
VR303
VR306
Cursor X-POSI
VR103
DT Start
VR104
DT Stop
TC101
A. 1us
VR102
Start
TC102
B 1us
VR308
X-GAIN
VR307
X-POSI
VR2
FIX. Level
VR201
Focus
VR202
INTEN
VR1
TRIG Level
FRONT

ADJUSTMENT

FINAL UNIT (X80-1370-0X)



TROUBLESHOOTING

When operating the CS-5200, be sure to use the proper procedure and check all panel settings.
A wrong setting cause abnormal operation from even a good product. For example, observation of a waveform with high noise components is accompanied by jitter. In such a case, the jitter can be corrected by setting the trigger coupling to HFrej.
If there is any function which you do not understand, check out by reading the instruction manual.
If the operation is abnormal even when the operating procedure is correct, remove the top case and bottom panel.

CAUTION
HIGH VOLTAGE PARTS ARE INSIDE THE EQUIPMENT. THEY ARE EXTREMELY DANGEROUS.

Check all PC boards to ensure that there is no unplugged connector or soldering defect.
Some problems may be corrected by applying correct adjustment. For example, if the trace moves up and down when the Vertical Variable control is turned, it can be corrected by adjusting the Variable balance. For the adjustment methods, read the descriptions of adjustment procedures.
The description in the troubleshooting section use the same circuit names as those used in the block diagram. Refer to the block diagram when reading the troubleshooting.

First, start with checking the power supply block.
Check the voltages at U401 on X74-158.

pin no.	voltage
1	+140
4	+55
6	+12
8	−12
10	+5
11	−8

OK (Acceptable):	Go to next step.
NG (Unacceptable):	There is a problem in the power supply block. Check the regulator circuit

a: In case no spot is displayed on the CRT in the X-Y mode.
Check that voltages at pins 1 and 4 of P7 on the X74-1580.
OK: Check the voltages at pins 1 and 3 of P5 on the X80-1370.
  OK: There is a problem in the BLK amp. (Go to b.)
  NG: There is a problem in the vertical amp. (Go to i.)
NG: There is a problem in the horizontal amp. (Go to c.)

b: Check if the voltage at JW18 on X74-1580 is correct.
OK: There is a problem in the BLK amp.
NG: There is a problem in the HIGH Volts converter.

c: Short-circuit the bases of Q306 and Q307 on X74-1580.
A spot is displayed on the CRT:
  There is a problem somewhere before the X amp. (Go to d.)
Nothing is displayed on the CRT:
  Short the collectors of Q310 and Q311.
A spot is displayed on the CRT:
  There is a problem in the MAG amp or R/O SW.
Nothing is displayed on the CRT:
  There is a problem in H-FINAL.

d: Short-circuit the collector of Q151 on X74-1580 with the chassis.
A spot is displayed on the CRT:
  There is a problem in the Vertical block.
Nothing is displayed on the CRT:
  There is a problem in the X amp.

e: In case no trace is displayed on the CRT in the A sweep mode.
Measure the waveform at pin 12 of U102 on X74-1580.
OK: Measure every waveform after U102 to locate the defective position.
NG: Measure the A SWEEP GATE, A SWEEP, A SWEEP STOP and HOLD OFF waveforms to locate the defective position.

f: In case no trace is displayed on the CRT in the B sweep mode.
Measure the waveform at pin 12 of U105 on X74-1580.
OK: Measure every waveform after U105 to locate the defective position.
NG: Measure the B SWEEP GATE, B SWEEP, B SWEEP STOP and DTP circuit waveforms to locate the defective position.

g: Intensity is not modulated in ALT sweep mode.
Check the waveform at the collector of Q116 on X74-1580.
OK: There is a problem in INTEN.
NG: There is a problem in the BLK amp.

h: Triggering cannot be applied.
Check the waveform at the collector of Q151 on the X74-1580.
OK: Check the waveform at the collector of Q158 on X74-1580.
  OK: There is a problem in the Schmitt circuit.
  NG: There is a problem in the Trig. Coup.
NG: There is a problem in the trigger selector.

TROUBLESHOOTING

i: Trace is not displayed.
Short-circuit the bases of Q7 and Q8 on X80-1370 and check if a trace is displayed on or near the center.
- OK: Short-circuit the bases of Q1 and Q2 on X80-1370 and check if a trace is displayed on o near the center.
  - OK: There is a problem in X73-2070. Check the defective point by shorting each signal line.
  - NG: There is a problem in the T.SEP amp or R/O SW on X80-1370.
- NG: There is a problem in V. FINAL.

j: TV synchronization is impossible.
Check the waveforms of the video amp on X74-1580.
- OK: There is a problem in the Schmitt circuit.
- NG: There is a problem in the circuitry before the video amp. Check the defective position following the signal flow. Be sure to check both TV-H and TV-V.

k: The channels are not displayed properly.
Check the outputs from V-MODE LOGIC on X73-2070.
- OK: There is a problem in the circuitry before the POSI amp of one of the channels. Check the waveforms.
- NG: Check the V-CLK waveform.
  - OK: There is a problem in the V-MODE LOGIC.
  - NG: There is a problem in the H-MODE LOGIC on X74-1580.

l: ADD is not possible.
There is a problem in the delay line driver on X73-2070.

m: CHOP sweep is not possible.
Check the waveform at the collector of Q118 on X74-1580.
- OK: There is a problem in the H-MODE LOGIC.
- NG: There is problem in the CHOP generator.

n: Auto free-run is not possible.
Check +5 V at pin 1 of U106 on X74-1580.
- OK: There is a problem in the A sweep gate.
- NG: There is a problem in the free-run circuit.

o: Characters are not displayed on the CRT.
- Check the CURSOR MODE SW and R/O INTEN.
- Check the blanking signals at P24-1, 3 and 5.
  - OK: Check the signals at ROX at P24-8 and ROY at P24 7.
    If NG, go to the next check item. If OK, check V FINAL or H FINAL.
  - NG: There is a problem in the blanking circuitry.
    (Check U15, U14, U5 and X2 and their surroundings.)

p: Character are not displayed properly on the CRT:
- Check if the CPU (U1) operates normally.
  (Check the conditions of X1, 10 MHz, U1, data bus and address bus.)
- Trace ROX from the input to output to find if there is any abnormal position. Also check ROY from the input to output.
  (Check U7, U9, U11, U13, U8, U10 and U12 and their surroundings.)
  - OK: There is a problem in V FINAL or H FINAL.
  - NG: There is a problem in the ROX or ROY output circuits.

q: Character data is not displayed properly on the CRT.
- Trace the character data input circuit and its surroundings to fine if there is any abnormal position.
  (Check U3, U5 and U17.)
  - OK: There is a problem in the Panel unit.
  - NG: There is a problem in the character data input circuit.

r: The cursor and DTP do not function properly.
- Check if the cursor and DTP voltages are output properly.

	↻	↺	CHECK POINT
Δ	0V	4V	P23-8
ΔREF	0V	4V	P23-14
DTP	4V	0V	P23-18

  - OK: There is a problem in the ROX or ROY output circuit.
  - NG: There is a problem in the Panel unit.

s: Abnormality occurs with other function than above.
Trace the signal path of the defective function referring to the block diagram to locate the defective position.

When all of the troubles have been repaired above, start re-adjustments following the adjustment procedures.

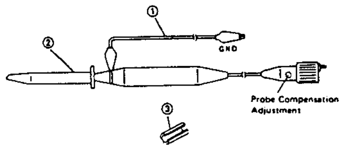
PARTS LIST

CS-5270

Y70-1960-01

REF.NO	PARTS NO	NAME & DESCRIPTION
	A63-0165-03	PANEL ASS'Y
	B41-0710-14	CAUTION LABEL,HIGH VOLTAGE
	B42-3820-05	LABEL;CARTON BOX
	B63-0218-20	INSTRUCTION MANUAL;JAPANESE
	B63-0219-30	INSTRUCTION MANUAL;ENGLISH
	E30-1929-05	BS POWER CORD
	E30-1950-05	JIS POWER CORD
	E30-1951-05	UL/CSA POWER CORD
	E30-1952-05	CEE POWER CORD
	F51-0031-05	FUSE(6X30MM) 630MA/250V
	F51-0033-05	FUSE(6X30MM) 1A/250V
	H10-2883-02	FORMED STYRENE PAD,FRONT
	H10-2884-02	FORMED STYRENE PAD,REAR
	H20-1727-04	VINYL COVER
	H53-0152-04	CARTON BOX
	W01-0406-14	ADJUTMENT ROD
D1	LN322GP	LED;GREEN
D103	LN322GP	LED;GREEN
1	A01-4017-02	CASE,TOP
2	A01-4018-02	CASE,BOTTOM
3	A13-2205-02	FRAME,LEFT
4	A13-2206-02	FRAME,RIGHT
5	A13-2207-12	FRAME,CENTER
6	A21-2423-03	DECORATIVE PANEL,LARGE
7	A21-2425-04	DECORATIVE PANEL,SMALL
8	A22-1307-02	SUB PANEL
9	A63-0110-01	MOLD PANEL,LARGE
10	A63-0111-02	MOLD PANEL,SMALL
11	A83-0067-02	REAR PANEL
12	B11-0518-04	FILTER
13	B41-2069-04	CAUTION LABEL
14	B73-0086-04	NAME PLATE;MODEL NO.
15	D21-0935-04	EXTENSION SHAFT
16	E18-0365-15	AC SELECTOR
16A	E18-0366-15	AC SELECTOR WITH 5X20MM FUSE
17	E21-0686-04	TERMINAL,CAL
18	E23-0552-04	EARTH TERMINAL
20	F11-1206-13	SHIELD CASE,CRT
21	F11-1269-03	SHIELD CASE
22	F15-0733-04	FELT (CRT SHIELD)
23	F20-3013-03	INSULATOR,LARGE
24	F20-3014-04	INSULATOR,SMALL
25	F29-0528-05	INSULATOR TUBE
26	J02-0089-05	RUBBER FOOT
27	J02-0509-04	TILT STAND
28	J19-1622-05	CORD CLAMP
29	J19-1653-23	HOLDER FOR CRT
30	J21-2573-04	HOLDER FOR LEG
31	J21-4853-04	BRACKET,FRONT
32	J21-4854-04	BRACKET,REAR
33	J21-4855-04	BRACKET
34	J42-0558-05	BUSHING
35	J59-0403-05	NYLON RIVET (ILLUMI)
36	K01-0541-05	HANDLE
37	K21-0919-14	KNOB;B SWP
38	K21-0920-04	KNOB;VARI
39	K21-0940-04	KNOB;A SWP
40	K23-0818-04	KNOB;V/DIV
41	K24-3005-04	PUSH SW;POWER
42	K27-0590-04	PUSH BUTTON;GRAYWHITE
43	K27-3618-14	LEVER
44	K29-0877-04	KNOB;VR
45	L07-1509-05	POWER TRANSFORMER
46	L39-0531-05	ROTATION COIL
47	S40-2532-05	POWER SW
48	W01-0503-04	REAR RUBBER FOOT/CORD WRAP
49	X66-1400-00	PANEL UNIT
50	X73-2070-02	VERTICAL UNIT
51	X74-1580-02	HORIZONTAL UNIT
52	X77-1870-00	R/O UNIT
53	X80-1370-02	FINAL AMP UNIT
54	X81-3270-00	DELAY LINE UNIT
55	150JKM31	CRT

MODEL PC-31 (LOW CAPACITY PROBE)



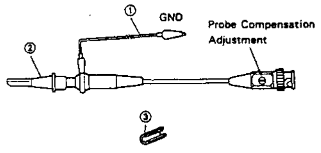
ITEM	DESCRIPTION	PARTS NO.
①	Ground Wire Assembly	E30-1883-08
②	Retractable Hook Tip	E29-0540-08
③	Marker (Orange)	B42-1950-08

CS-5275

Y70-1970-01

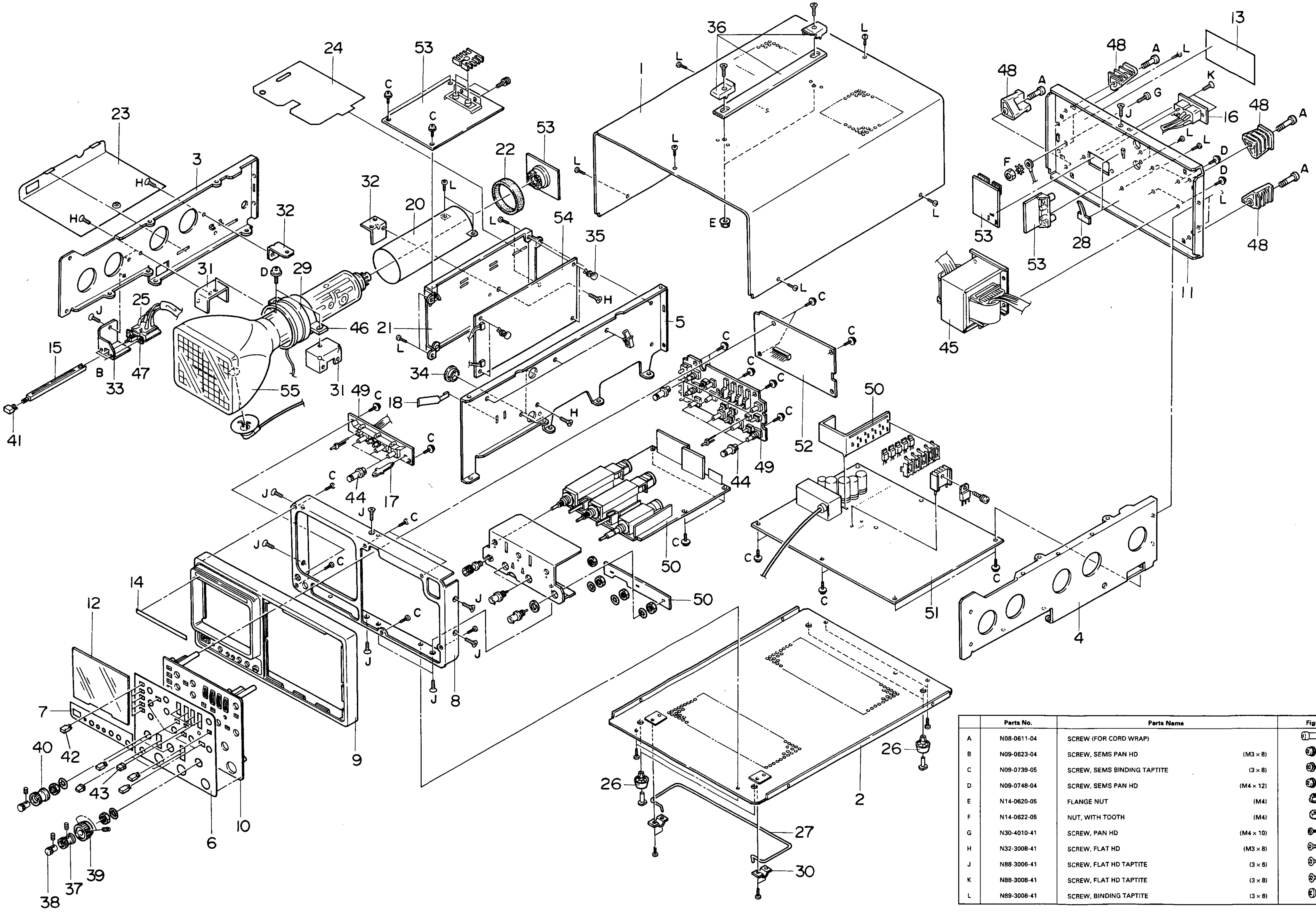
REF.NO	PARTS NO	NAME & DESCRIPTION
	A63-0167-03	PANEL ASS'Y
	B41-0710-14	CAUTION LABEL,HIGH VOLTAGE
	B42-3820-05	LABEL;CARTON BOX
	B63-0218-20	INSTRUCTION MANUAL;JAPANESE
	B63-0219-30	INSTRUCTION MANUAL;ENGLISH
	E30-1929-05	BS POWER CORD
	E30-1950-05	JIS POWER CORD
	E30-1951-05	UL/CSA POWER CORD
	E30-1952-05	CEE POWER CORD
	F51-0031-05	FUSE(6X30MM) 630MA/250V
	F51-0033-05	FUSE(6X30MM) 1A/250V
	H10-2883-02	FORMED STYRENE PAD,FRONT
	H10-2884-02	FORMED STYRENE PAD,REAR
	H20-1727-04	VINYL COVER
	H53-0154-04	CARTON BOX
	W01-0406-14	ADJUTMENT ROD
D1	LN322GP	LED;GREEN
D103	LN322GP	LED;GREEN
1	A01-4017-02	CASE,TOP
2	A01-4018-02	CASE,BOTTOM
3	A13-2205-02	FRAME,LEFT
4	A13-2206-02	FRAME,RIGHT
5	A13-2207-12	FRAME,CENTER
6	A21-2424-03	DECORATIVE PANEL,LARGE
7	A21-2426-04	DECORATIVE PANEL,SMALL
8	A22-1307-02	SUB PANEL
9	A63-0110-01	MOLD PANEL,LARGE
10	A63-0111-02	MOLD PANEL,SMALL
11	A83-0067-02	REAR PANEL
12	B11-0518-04	FILTER
13	B41-2069-04	CAUTION LABEL
14	B73-0088-04	NAME PLATE;MODEL NO.
15	D21-0935-04	EXTENSION SHAFT
16	E18-0365-15	AC SELECTOR
16A	E18-0366-15	AC SELECTOR WITH 5X20MM FUSE
17	E21-0686-04	TERMINAL,CAL
18	E23-0552-04	EARTH TERMINAL
20	F11-1206-13	SHIELD CASE,CRT
21	F11-1269-03	SHIELD CASE
22	F15-0733-04	FELT (CRT SHIELD)
23	F20-3013-03	INSULATOR,LARGE
24	F20-3014-04	INSULATOR,SMALL
25	F29-0528-05	INSULATOR TUBE
26	J02-0089-05	RUBBER FOOT
27	J02-0509-04	TILT STAND
28	J19-1622-05	CORD CLAMP
29	J19-1653-23	HOLDER FOR CRT
30	J21-2573-04	HOLDER FOR LEG
31	J21-4853-04	BRACKET,FRONT
32	J21-4854-04	BRACKET,REAR
33	J21-4855-04	BRACKET
34	J42-0558-05	BUSHING
35	J59-0403-05	NYLON RIVET (ILLUMI)
36	K01-0541-05	HANDLE
37	K21-0919-14	KNOB;B SWP
38	K21-0920-04	KNOB;VARI
39	K21-0940-04	KNOB;A SWP
40	K23-0818-04	KNOB;V/DIV
41	K24-3005-04	PUSH SW;POWER
42	K27-0590-04	PUSH BUTTON;GRAYWHITE
43	K27-3618-14	LEVER
44	K29-0877-04	KNOB;VR
45	L07-1509-05	POWER TRANSFORMER
46	L39-0531-05	ROTATION COIL
47	S40-2532-05	POWER SW
48	W01-0503-04	REAR RUBBER FOOT/CORD WRAP
49	X66-1400-01	PANEL UNIT
50	X73-2070-03	VERTICAL UNIT
51	X74-1580-03	HORIZONTAL UNIT
53	X80-1370-03	FINAL AMP UNIT
54	X81-3270-00	DELAY LINE UNIT
55	150JKM31	CRT

MODEL PC-39 (LOW CAPACITY PROBE)



ITEM	DESCRIPTION	PARTS NO.
①	Ground Wire Assembly	E30-1883-08
②	Retractable Hook Tip	E29-0540-08
③	Marker (Orange)	B42-1950-08

DISASSEMBLY



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	Parts No.	Parts Name		Figure
A	N08-0611-04	SCREW (FOR CORD WRAP)		
B	N09-0623-04	SCREW, SEMS PAN HD	(M3 × 8)	
C	N09-0739-05	SCREW, SEMS BINDING TAPTITE	(3 × 8)	
D	N09-0748-04	SCREW, SEMS PAN HD	(M4 × 12)	
E	N14-0620-05	FLANGE NUT	(M4)	
F	N14-0622-05	NUT, WITH TOOTH	(M4)	
G	N30-4010-41	SCREW, PAN HD	(M4 × 10)	
H	N32-3008-41	SCREW, FLAT HD	(M3 × 8)	
J	N88-3006-41	SCREW, FLAT HD TAPTITE	(3 × 6)	
K	N88-3008-41	SCREW, FLAT HD TAPTITE	(3 × 8)	
L	N89-3008-41	SCREW, BINDING TAPTITE	(3 × 8)	

PARTS LIST

CS-5270 PANEL UNIT

X66-1400-00

REF.NO	PARTS NO	NAME & DESCRIPTION			
	A33-0505-04	REFLECTOR			
	E38-0994-15	WIRE ASS'Y			
	E38-0995-15	WIRE ASS'Y			
	J73-0287-02	PCB (UNMOUNTED)			
C1	CE04LW1A221M	CAP. ELECTRO	220	20%	10V
C2	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C3	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C101	C90-3228-05	CAP. ELECTRO	47	20%	16V
C102	C90-3228-05	CAP. ELECTRO	47	20%	16V
C103	CF92FV1H103J	CAP. POLYESTER	0.01	5%	50V
C104	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C105	C90-3228-05	CAP. ELECTRO	47	20%	16V
C801	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
D2	1SS132	DIODE			
D101	1SS132	DIODE			
D102	1SS132	DIODE			
JW11	E38-0992-25	WIRE ASS'Y			
JW12	E38-0993-25	WIRE ASS'Y			
JW17	E38-0996-15	WIRE ASS'Y			
L1	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
L2	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
L3	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
L4	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
L5	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
L6	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
L7	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
L8	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
L9	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
L10	L40-3391-17	FERRI INDUCTOR	3.3UH	10%	
P15	E40-5067-05	PIN CONNECTOR	10P		
P16	E40-5069-05	PIN CONNECTOR	12P		
P23	E40-7411-05	PIN CONNECTOR	26P		
P26	E40-0218-05	PIN CONNECTOR	2P		
P27	E40-0218-05	PIN CONNECTOR	2P		
PL101	B30-3016-05	LAMP			
PL102	B30-3016-05	LAMP			
PL103	B30-3016-05	LAMP			
Q1	2SC1740S(R,S)	TR. SI, NPN			
Q2	2SC1740S(R,S)	TR. SI, NPN			
Q3	2SA933S(R,S)	TR. SI, PNP			
Q101	2SC1740S(R,S)	TR. SI, NPN			
Q102	2SC1740S(R,S)	TR. SI, NPN			
Q103	2SC1318A(R)	TR. SI, NPN			
Q104	2SA720A(R)	TR. SI, PNP			
R1	R90-1182-05	RES. NETWORK			
R2	R90-1182-05	RES. NETWORK			
R3	R90-1182-05	RES. NETWORK			
R4	R90-1182-05	RES. NETWORK			
R5	RN14BK2C1002D	RES. METAL FILM	10K	0.5%	1/6W
R6	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R7	R92-1061-05	JUMPING RES.	ZERO OHM(5MM)		
R8	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R9	RN14BK2C2203F	RES. METAL FILM	220K	1%	1/6W
R10	RN14BK2C2202F	RES. METAL FILM	22K	1%	1/6W
R11	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R12	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R13	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R14	RN14BK2C1962D	RES. METAL FILM	19.6K	0.5%	1/6W
R15	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R16	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R17	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R18	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R19	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R20	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R21	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R22	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R23	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R24	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R25	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R26	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R27	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R28	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R29	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R30	RD14BB2C330J	RES. CARBON	33	5%	1/6W
R31	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R32	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R33	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R34	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R35	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R36	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R37	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R38	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R39	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R40	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R41	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R42	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R43	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R44	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R45	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R46	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R47	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R48	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R49	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R50	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R101	RN14BK2C5102F	RES. METAL FILM	51K	1%	1/6W
R102	RN14BK2C3902F	RES. METAL FILM	39K	1%	1/6W
R103	RN14BK2C3902F	RES. METAL FILM	39K	1%	1/6W
R104	RN14BK2C4702F	RES. METAL FILM	47K	1%	1/6W
R105	RN14BK2C4702F	RES. METAL FILM	47K	1%	1/6W
R106	RD14BB2C183J	RES. CARBON	18K	5%	1/6W
R107	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R108	NO USE				
R109	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R110	RN14BK2C6801F	RES. METAL FILM	6.8K	1%	1/6W
R111	RD14BB2C241J	RES. CARBON	240	5%	1/6W
R112	RN14BK2C6800F	RES. METAL FILM	680	1%	1/6W
R113	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R114	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R115	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R116	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R117	RD14BB2C123J	RES. CARBON	12K	5%	1/6W
R118	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R119	RD14BB2C123J	RES. CARBON	12K	5%	1/6W
R120	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
S1	S40-1532-05	PUSH SWITCH			
S2	S40-1532-05	PUSH SWITCH			
S3	S40-1532-05	PUSH SWITCH			
S4	S40-1532-05	PUSH SWITCH			
S5	S40-1532-05	PUSH SWITCH			
S6	S40-1532-05	PUSH SWITCH			
S7	S64-0605-05	LEVER SWITCH			
S8	S64-0605-05	LEVER SWITCH			
S9	S64-0606-05	LEVER SWITCH			
S10	S64-0604-05	LEVER SWITCH			
S11	S40-1532-05	PUSH SWITCH			
S12	S40-1532-05	PUSH SWITCH			
S13	S40-1532-05	PUSH SWITCH			
S14	S40-1532-05	PUSH SWITCH			
S15	S40-7411-05	PUSH SWITCH			
U1	NJM4558L	IC,DUAL OP AMP			
U101	NJM4558L	IC,DUAL OP AMP			
VR1	R05-3521-05	V.R.	20KB		
VR2	R05-3521-05	V.R.	20KB		
VR3	R05-3521-05	V.R.	20KB		
VR4	R05-3521-05	V.R.	20KB		
VR5	R05-3521-05	V.R.	20KB		
VR6	R05-3527-05	V.R.	20KB		
VR7	R05-3521-05	V.R.	20KB		
VR8	R05-3527-05	V.R.	20KB		
VR9	R05-3527-05	V.R.	20KB		
VR101	R05-3521-05	V.R.	20KB		
VR102	R05-3521-05	V.R.	20KB		
VR103	R12-5540-05	RES. SEMI FIXED	100KB		
VR104	R12-5540-05	RES. SEMI FIXED	100KB		
VR105	R05-3521-05	V.R.	20KB		

PARTS LIST

CS-5275 PANEL UNIT

X66-1400-01

REF.NO	PARTS NO	NAME & DESCRIPTION			
	A33-0505-04	REFLECTOR			
	E38-0994-15	WIRE ASS'Y			
	E38-0995-15	WIRE ASS'Y			
	J73-0287-02	PCB (UNMOUNTED)			
C1	CE04LW1A221M	CAP. ELECTRO	220	20%	10V
C2	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C3	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C101	C90-3228-05	CAP. ELECTRO	47	20%	16V
C102	C90-3228-05	CAP. ELECTRO	47	20%	16V
C103	CF92FV1H103J	CAP. POLYESTER	0.01	5%	50V
C104	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C105	C90-3228-05	CAP. ELECTRO	47	20%	16V
C801	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
D2	1SS132	DIODE			
D101	1SS132	DIODE			
D102	1SS132	DIODE			
JW12	E38-0993-25	WIRE ASS'Y			
JW17	E38-0996-15	WIRE ASS'Y			
L8	R92-1061-05	JUMPING RES.	ZERO OHM(5MM)		
L9	R92-1061-05	JUMPING RES.	ZERO OHM(5MM)		
L10	R92-1061-05	JUMPING RES.	ZERO OHM(5MM)		
P15	E40-5067-05	PIN CONNECTOR	10P		
P16	E40-5069-05	PIN CONNECTOR	12P		
P26	E40-0218-05	PIN CONNECTOR	2P		
P27	E40-0218-05	PIN CONNECTOR	2P		
PL101	B30-3016-05	LAMP			
PL102	B30-3016-05	LAMP			
PL103	B30-3016-05	LAMP			
Q1	2SC1740S(R,S)	TR. SI, NPN			
Q2	2SC1740S(R,S)	TR. SI, NPN			
Q3	2SA933S(R,S)	TR. SI, PNP			
Q101	2SC1740S(R,S)	TR. SI, NPN			
Q102	2SC1740S(R,S)	TR. SI, NPN			
Q103	2SC1318A(R)	TR. SI, NPN			
Q104	2SA720A(R)	TR. SI, PNP			
R1	R90-1182-05	RES. NETWORK			
R2	R90-1182-05	RES. NETWORK			
R3	R90-1182-05	RES. NETWORK			
R4	R90-1182-05	RES. NETWORK			
R5	RN14BK2C1002D	RES. METAL FILM	10K	0.5%	1/6W
R6	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R7	R92-1061-05	JUMPING RES.	ZERO OHM(5MM)		
R8	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R9	RN14BK2C2203F	RES. METAL FILM	220K	1%	1/6W
R10	RN14BK2C2202F	RES. METAL FILM	22K	1%	1/6W
R11	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R12	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R13	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R14	RN14BK2C1962D	RES. METAL FILM	19.6K	0.5%	1/6W
R15	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R16	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R17	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R18	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R19	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R20	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R21	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R22	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R23	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R24	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R25	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R26	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R27	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R28	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R29	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R30	RD14BB2C330J	RES. CARBON	33	5%	1/6W
R31	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R32	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R33	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R34	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R35	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R36	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R37	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R38	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R39	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R40	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R41	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R42	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R43	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R46	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R47	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R48	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R49	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R50	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R101	RN14BK2C5102F	RES. METAL FILM	51K	1%	1/6W
R102	RN14BK2C3902F	RES. METAL FILM	39K	1%	1/6W
R103	RN14BK2C3902F	RES. METAL FILM	39K	1%	1/6W
R104	RN14BK2C4702F	RES. METAL FILM	47K	1%	1/6W
R105	RN14BK2C4702F	RES. METAL FILM	47K	1%	1/6W
R106	RD14BB2C183J	RES. CARBON	18K	5%	1/6W
R107	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R108	NO USE				
R109	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R110	RN14BK2C6801F	RES. METAL FILM	6.8K	1%	1/6W
R111	RD14BB2C241J	RES. CARBON	240	5%	1/6W
R112	RN14BK2C6800F	RES. METAL FILM	680	1%	1/6W
R113	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R114	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R115	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R116	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R117	NO USE				
R118	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R119	RD14BB2C123J	RES. CARBON	12K	5%	1/6W
R120	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
S1	S40-1532-05	PUSH SWITCH			
S2	S40-1532-05	PUSH SWITCH			
S3	S40-1532-05	PUSH SWITCH			
S4	S40-1532-05	PUSH SWITCH			
S5	S40-1532-05	PUSH SWITCH			
S6	S40-1532-05	PUSH SWITCH			
S7	S64-0605-05	LEVER SWITCH			
S8	S64-0605-05	LEVER SWITCH			
S9	S64-0606-05	LEVER SWITCH			
S10	S64-0604-05	LEVER SWITCH			
S11	S40-1532-05	PUSH SWITCH			
S12	S40-1532-05	PUSH SWITCH			
S13	S40-1532-05	PUSH SWITCH			
S14	S40-1532-05	PUSH SWITCH			
U1	NJM4558L	IC,DUAL OP AMP			
U101	NJM4558L	IC,DUAL OP AMP			
VR1	R05-3521-05	V.R.	20KB		
VR2	R05-3521-05	V.R.	20KB		
VR3	R05-3521-05	V.R.	20KB		
VR4	R05-3521-05	V.R.	20KB		
VR5	R05-3521-05	V.R.	20KB		
VR6	R05-3527-05	V.R.	20KB		
VR7	R05-3521-05	V.R.	20KB		
VR8	R05-3527-05	V.R.	20KB		
VR9	R05-3527-05	V.R.	20KB		
VR101	R05-3521-05	V.R.	20KB		
VR102	R05-3521-05	V.R.	20KB		
VR103	NO USE				
VR104	R12-5540-05	RES. SEMI FIXED	100KB		
VR105	R05-3521-05	V.R.	20KB		

CS-5270 VERTICAL UNIT

X73-2070-02

REF.NO	PARTS NO	NAME & DESCRIPTION			
	A22-1308-03	SUB PANEL			
	E21-0667-05	METAL TERMINAL			
	E23-0149-05	GND TERMINAL			
	F01-2318-04	HEAT SINK			
	F10-1590-14	SHIELD PLATE,ATT			
	F10-1668-04	SHIELD PLATE			
	J30-0623-04	SPACER			
	J73-0283-22	PCB (UNMOUNTED)			
C2	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C7	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C30	C91-0747-05	CAP. CERAMIC	150P	10%	50V
C31	C91-0747-05	CAP. CERAMIC	150P	10%	50V
C32	C91-0748-05	CAP. CERAMIC	180P	10%	50V
C33	C91-2595-05	CAP. CERAMIC	68P	5%	50V
C34	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C35	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C36	C91-0745-05	CAP. CERAMIC	100P	10%	50V
C37	C91-0745-05	CAP. CERAMIC	100P	10%	50V
C38	C91-0745-05	CAP. CERAMIC	100P	10%	50V
C39	CE04CW1C470M	CAP. ELECTRO	47	20%	16V
C40	CE04LW1A470M	CAP. ELECTRO	47	20%	10V
C51	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C52	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C53	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C54	CE04LW1C330M	CAP. ELECTRO	33	20%	16V
C57	CE04HW1C220M	CAP. ELECTRO	22	20%	16V
C58	CC45FCH1H680J	CAP. CERAMIC	68P	5%	50V
C59	CE04LW1E470M	CAP. ELECTRO	47	20%	25V
C102	C91-2580-05	CAP. POLYESTER	0.047	10%	400V
C103	C91-2579-05	CAP. POLYESTER	0.01	10%	400V
C104	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C105	CE04LW1A101M	CAP. ELECTRO	100	20%	10V
C106	NO USE				
C107	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C110	CC45FCH1H680J	CAP. CERAMIC	68P	5%	50V
C111	NO USE				
C112	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C113	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C114	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C117	CE04CW1C470M	CAP. ELECTRO	47	20%	16V
C118	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C122	CC45FCH1H560J	CAP. CERAMIC	56P	5%	50V
C125	CF92FV1H332J	CAP. POLYESTER	3300P	5%	50V
C202	C91-2580-05	CAP. POLYESTER	0.047	10%	400V
C203	C91-2579-05	CAP. POLYESTER	0.01	10%	400V
C204	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C205	CE04LW1A101M	CAP. ELECTRO	100	20%	10V
C206	NO USE				
C207	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C210	CC45FCH1H680J	CAP. CERAMIC	68P	5%	50V
C211	NO USE				
C212	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C213	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C214	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C217	CE04CW1C470M	CAP. ELECTRO	47	20%	16V
C218	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C221	CE04LW1E470M	CAP. ELECTRO	47	20%	25V
C222	CC45FCH1H560J	CAP. CERAMIC	56P	5%	50V
C225	CF92FV1H332J	CAP. POLYESTER	3300P	5%	50V
C301	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C302	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C303	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C304	NO USE				
C305	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C306	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C307	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C313	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C314	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C315	NO USE				
C316	CE04EW1E470M	CAP. ELECTRO	47	20%	25V
C319	CE04LW1C470M	CAP. ELECTRO	47	20%	16V
C401	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C402	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C403	CE04LW1C470M	CAP. ELECTRO	47	20%	16V
C404	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C405	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C406	NO USE				
C407	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C410	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C411	NO USE				
C412	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C418	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C451	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C452	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C901	CK45B1H102K	CAP. CERAMIC	1000P	10%	50V
D2	1SS132	DIODE			
D31	1SS132	DIODE			
D32	1SS132	DIODE			
D35	1SS132	DIODE			
D36	1SS132	DIODE			
D37	1SS132	DIODE			
D101	1SS132	DIODE			
D102	1SS132	DIODE			
D103	1SS132	DIODE			
D104	1SS132	DIODE			
D105	1SS132	DIODE			
D106	1SS132	DIODE			
D107	1SS132	DIODE			
D108	1SS132	DIODE			
D201	1SS132	DIODE			
D202	1SS132	DIODE			
D203	1SS132	DIODE			
D204	1SS132	DIODE			
D205	1SS132	DIODE			
D206	1SS132	DIODE			
D207	1SS132	DIODE			
D208	1SS132	DIODE			
D301	1SS132	DIODE			
D302	1SS132	DIODE			
D303	1SS132	DIODE			
D304	1SS132	DIODE			
D305	1SS132	DIODE			
D306	1SS132	DIODE			
D307	1SS132	DIODE			
D308	1SS132	DIODE			
D309	1SS132	DIODE			
JW6	E38-0985-05	WIRE ASS'Y;V TO H TRG			
JW10	E38-0986-05	WIRE ASS'Y;V TO H SWP			
JW301	E38-0987-15	WIRE ASS'Y;CH3 INPUT			
JW401	E38-0984-15	WIRE ASS'Y;PROBE DETECTION			
JW501	E38-0983-25	WIRE ASS'Y;SUB PANEL TO GND			
L1	L79-0553-05	NOISE FILTER			
L40	L40-2201-17	FERRI INDUCTOR	22UH	10%	
L51	L40-4791-17	FERRI INDUCTOR	4.7UH	10%	
L52	L40-4791-17	FERRI INDUCTOR	4.7UH	10%	
L301	L40-4781-17	FERRI INDUCTOR	0.47UH	10%	
P1	E04-0260-05	BNC RECEPTACLE (READOUT)			
P2	E04-0260-05	BNC RECEPTACLE (READOUT)			
P3	E04-0259-05	BNC RECEPTACLE			
P4	E40-7515-05	PIN CONNECTOR	3P		
P9	E40-7518-05	PIN CONNECTOR	6P		
P10	NO USE				
P11	E40-3242-05	PIN CONNECTOR	7P		
P12	E40-5066-05	PIN CONNECTOR	9P		
P13	E40-7515-05	PIN CONNECTOR	3P		
P201	E40-7432-05	PIN CONNECTOR	13P		
P202	E40-7423-05	PIN CONNECTOR	4P		
P203	E40-7430-05	PIN CONNECTOR	11P		
P204	E40-7426-05	PIN CONNECTOR	7P		
P205	E40-7422-05	PIN CONNECTOR	3P		
P206	E40-7426-05	PIN CONNECTOR	7P		
P207	E40-7432-05	PIN CONNECTOR	13P		
P208	E40-7432-05	PIN CONNECTOR	13P		
Q1	2SC1740S(R,S)	TR. SI, NPN			
Q2	2SC3779(D)	TR. SI, NPN			
Q3	2SC3779(D)	TR. SI, NPN			
Q32	2SC3066(G)	TR. SI, NPN			
Q33	2SC1740S(R,S)	TR. SI, NPN			
Q34	2SA933S(R,S)	TR. SI, PNP			
Q51	2SC1923(O)	TR. SI, NPN			
Q101	2SC1923(O)	TR. SI, NPN			
Q102	2SK404(E)	FET, N-CHANNEL			
Q103	2SC1907	TR. SI, NPN			
Q106	2SC3779(D)	TR. SI, NPN			
Q107	2SC3779(D)	TR. SI, NPN			
Q108	2SA1459(K)	TR. SI, PNP			
Q109	2SA1459(K)	TR. SI, PNP			
Q110	2SA1459(K)	TR. SI, PNP			
Q111	2SA1459(K)	TR. SI, PNP			
Q112	2SA1161	TR. SI, PNP			
Q113	2SA1161	TR. SI, PNP			
Q114	2SA1459(K)	TR. SI, PNP			
Q201	2SC1923(O)	TR. SI, NPN			
Q202	2SK404(E)	FET, N-CHANNEL			
Q203	2SC1907	TR. SI, NPN			
Q206	2SC3779(D)	TR. SI, NPN			
Q207	2SC3779(D)	TR. SI, NPN			
Q208	2SA1459(K)	TR. SI, PNP			
Q209	2SA1459(K)	TR. SI, PNP			
Q210	2SA1459(K)	TR. SI, PNP			
Q211	2SA1459(K)	TR. SI, PNP			
Q212	2SA1161	TR. SI, PNP			
Q213	2SA1161	TR. SI, PNP			
Q214	2SA1459(K)	TR. SI, PNP			
Q215	2SC1740S(R,S)	TR. SI, NPN			
Q302	2SC1923(O)	TR. SI, NPN			
Q303	2SK404(E)	FET, N-CHANNEL			
Q304	2SC1907	TR. SI, NPN			
Q305	2SA1459(K)	TR. SI, PNP			
Q306	2SA1459(K)	TR. SI, PNP			
Q307	2SC1907	TR. SI, NPN			
Q308	2SC1907	TR. SI, NPN			
Q309	2SC1907	TR. SI, NPN			
Q310	2SA1459(K)	TR. SI, PNP			
Q311	2SA1459(K)	TR. SI, PNP			
Q312	2SC1907	TR. SI, NPN			
Q313	2SA1459(K)	TR. SI, PNP			
Q314	2SA1459(K)	TR. SI, PNP			
R1	RN14BK2C2002F	RES. METAL FILM	20K	1%	1/6W
R2	RN14BK2C2001F	RES. METAL FILM	2K	1%	1/6W
R3	RN14BK2C2001F	RES. METAL FILM	2K	1%	1/6W
R6	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R7	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R8	RN14BK2C3900F	RES. METAL FILM	390	1%	1/6W
R9	RN14BK2C3900F	RES. METAL FILM	390	1%	1/6W
R10	RN14BK2C7500F	RES. METAL FILM	750	1%	1/6W
R11	RN14BK2C7500F	RES. METAL FILM	750	1%	1/6W
R12	R92-1553-05	RES. SPECIAL POWER	620	5%	1W
R17	RN14BK2C6200F	RES. METAL FILM	620	1%	1/6W
R18	RN14BK2C6200F	RES. METAL FILM	620	1%	1/6W
R19	RN14BK2C39R0F	RES. METAL FILM	39	1%	1/6W
R20	RN14BK2C39R0F	RES. METAL FILM	39	1%	1/6W
R21	NO USE				
R22	RN14BK2C6802F	RES. METAL FILM	68K	1%	1/6W
R31	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R32	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R33	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R34	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R35	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R36	R90-0645-05	RES. NETWORK	4X10K		
R37	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R38	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R39	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R40	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R41	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R42	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R43	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R44	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R45	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R52	RD14BB2C391J	RES. CARBON	390	5%	1/6W
R59	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W
R62	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R63	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R64	RD14BB2C133J	RES. CARBON	13K	5%	1/6W
R65	RD14BB2C910J	RES. CARBON	91	5%	1/6W
R66	RD14BB2C910J	RES. CARBON	91	5%	1/6W
R67	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R68	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R69	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R70	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R71	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R101	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R102	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R103	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R104	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R107	RD14BB2C684J	RES. CARBON	680K	5%	1/6W
R108	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R109	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R110	NO USE				
R111	RD14BB2C160J	RES. CARBON	16	5%	1/6W
R112	RN14BK2C2700F	RES. METAL FILM	270	1%	1/6W
R113	NO USE				
R114	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R115	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R116	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R117	RN14BK2C3301F	RES. METAL FILM	3.3K	1%	1/6W
R118	RN14BK2C2401F	RES. METAL FILM	2.4K	1%	1/6W
R119	RN14BK2C5100F	RES. METAL FILM	510	1%	1/6W
R120	RD14BB2C301J	RES. CARBON	300	5%	1/6W
R121	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W
R122	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R123	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R124	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R125	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R126	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R127	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R128	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R129	NO USE				
R130	RD14BB2C823J	RES. CARBON	82K	5%	1/6W
R131	NO USE				
R132	RN14BK2C4701F	RES. METAL FILM	4.7K	1%	1/6W
R133	RN14BK2C47R0F	RES. METAL FILM	47	1%	1/6W
R134	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R135	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R136	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R137	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R138	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R139	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R140	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R141	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R142	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R143	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R144	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R145	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R146	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R147	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W
R148	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R149	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R150	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R151	RD14BB2C513J	RES. CARBON	51K	5%	1/6W
R152	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R153	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R154	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R155	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R156	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R157	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R158	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R159	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R160	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R161	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R162	RD14BB2C820J	RES. CARBON	82	5%	1/6W
R163	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R164	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R165	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R166	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R170	R92-1578-05	RES. LINEAR PCT	3.9K	5%	1/6W
R171	NO USE				
R172	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R173	NO USE				
R174	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R175	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R176	NO USE				
R177	RD14BB2C473J	RES. CARBON	47K	5%	1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
R201	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R202	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R203	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R204	RD14BB2C105J	RES. CARBON 1M 5% 1/6W
R207	RD14BB2C684J	RES. CARBON 680K 5% 1/6W
R208	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R209	RD14BB2C132J	RES. CARBON 1.3K 5% 1/6W
R210	NO USE	
R211	RD14BB2C160J	RES. CARBON 16 5% 1/6W
R212	RN14BK2C2200F	RES. METAL FILM 220 1% 1/6W
R213	NO USE	
R214	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R215	RN14BK2C1301F	RES. METAL FILM 1.3K 1% 1/6W
R216	RN14BK2C1301F	RES. METAL FILM 1.3K 1% 1/6W
R217	RN14BK2C3301F	RES. METAL FILM 3.3K 1% 1/6W
R218	RN14BK2C2401F	RES. METAL FILM 2.4K 1% 1/6W
R219	RN14BK2C5100F	RES. METAL FILM 510 1% 1/6W
R220	RD14BB2C301J	RES. CARBON 300 5% 1/6W
R221	RN14BK2C1004F	RES. METAL FILM 1M 1% 1/6W
R222	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R223	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R224	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R225	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R226	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R227	RD14BB2C163J	RES. CARBON 16K 5% 1/6W
R228	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R229	NO USE	
R230	RD14BB2C823J	RES. CARBON 82K 5% 1/6W
R231	NO USE	
R232	RN14BK2C4701F	RES. METAL FILM 4.7K 1% 1/6W
R233	RN14BK2C47R0F	RES. METAL FILM 47 1% 1/6W
R234	RN14BK2C1002F	RES. METAL FILM 10K 1% 1/6W
R235	RN14BK2C1002F	RES. METAL FILM 10K 1% 1/6W
R236	RN14BK2C1301F	RES. METAL FILM 1.3K 1% 1/6W
R237	RN14BK2C1301F	RES. METAL FILM 1.3K 1% 1/6W
R238	RN14BK2C1801F	RES. METAL FILM 1.8K 1% 1/6W
R239	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R240	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R241	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R242	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R243	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R244	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R245	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R246	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R247	RN14BK2C1001F	RES. METAL FILM 1K 1% 1/6W
R248	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R249	RD14BB2C181J	RES. CARBON 180 5% 1/6W
R250	RD14BB2C333J	RES. CARBON 33K 5% 1/6W
R251	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R252	RD14BB2C333J	RES. CARBON 33K 5% 1/6W
R253	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R254	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R255	RD14BB2C752J	RES. CARBON 7.5K 5% 1/6W
R256	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R257	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R258	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R259	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R260	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R261	RD14BB2C431J	RES. CARBON 430 5% 1/6W
R262	RD14BB2C820J	RES. CARBON 82 5% 1/6W
R263	RD14BB2C153J	RES. CARBON 15K 5% 1/6W
R264	RD14BB2C622J	RES. CARBON 6.2K 5% 1/6W
R265	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R266	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R267	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R268	RD14BB2C361J	RES. CARBON 360 5% 1/6W
R269	RD14BB2C271J	RES. CARBON 270 5% 1/6W
R270	R92-1578-05	RES. LINEAR PCT 3.9K 5% 1/6W
R271	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R272	RD14BB2C100J	RES. CARBON 10 5% 1/6W
R273	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R274	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R275	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R276	NO USE	
R277	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R300	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R301	RN14BK2C8003F	RES. METAL FILM 800K 1% 1/6W
R302	RN14BK2C2003F	RES. METAL FILM 200K 1% 1/6W
R303	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R304	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R305	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R306	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R307	RD14BB2C822J	RES. CARBON 8.2K 5% 1/6W
R308	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R309	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R310	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R311	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R312	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R313	RD14BB2C621J	RES. CARBON 620 5% 1/6W
R314	RD14BB2C131J	RES. CARBON 130 5% 1/6W
R315	NO USE	
R316	RN14BK2C7500F	RES. METAL FILM 750 1% 1/6W
R317	RD14BB2C112J	RES. CARBON 1.1K 5% 1/6W
R318	RD14BB2C112J	RES. CARBON 1.1K 5% 1/6W
R319	RN14BK2C4300F	RES. METAL FILM 430 1% 1/6W
R320	RN14BK2C3301F	RES. METAL FILM 3.3K 1% 1/6W
R321	RN14BK2C6801F	RES. METAL FILM 6.8K 1% 1/6W
R322	RN14BK2C8200F	RES. METAL FILM 820 1% 1/6W
R323	RN14BK2C8200F	RES. METAL FILM 820 1% 1/6W
R324	RD14BB2C203J	RES. CARBON 20K 5% 1/6W
R325	RD14BB2C333J	RES. CARBON 33K 5% 1/6W
R326	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R327	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R328	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R329	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R330	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R331	NO USE	
R332	RD14BB2C113J	RES. CARBON 11K 5% 1/6W
R333	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R334	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R335	RD14BB2C821J	RES. CARBON 820 5% 1/6W
R336	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R337	RD14BB2C132J	RES. CARBON 1.3K 5% 1/6W
R338	R92-1577-05	RES. LINEAR PCT 1K 5% 1/6W
R339	NO USE	
R340	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R341	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R342	NO USE	
R343	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R344	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R345	R92-1579-05	RES. LINEAR PCT 220
R346	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R347	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R348	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R401	RN14BK2C2201F	RES. METAL FILM 2.2K 1% 1/6W
R407	RN14BK2C2201F	RES. METAL FILM 2.2K 1% 1/6W
R413	RN14BK2C1801D	RES. METAL FILM 1.8K 0.5% 1/6W
R414	RN14BK2C1002D	RES. METAL FILM 10K 0.5% 1/6W
R415	RN14BK2C2002D	RES. METAL FILM 20K 0.5% 1/6W
R416	RN14BK2C4022D	RES. METAL FILM 40.2K 0.5% 1/6W
R417	RN14BK2C8062D	RES. METAL FILM 80.6K 0.5% 1/6W
R418	RN14BK2C1603D	RES. METAL FILM 160K 0.5% 1/6W
R419	RN14BK2C2153D	RES. METAL FILM 215K 0.5% 1/6W
R420	NO USE	
R421	RN14BK2C1801D	RES. METAL FILM 1.8K 0.5% 1/6W
R422	RN14BK2C1002D	RES. METAL FILM 10K 0.5% 1/6W
R423	RN14BK2C2002D	RES. METAL FILM 20K 0.5% 1/6W
R424	RN14BK2C4022D	RES. METAL FILM 40.2K 0.5% 1/6W
R425	RN14BK2C8062D	RES. METAL FILM 80.6K 0.5% 1/6W
R426	RN14BK2C1603D	RES. METAL FILM 160K 0.5% 1/6W
R427	RN14BK2C2153D	RES. METAL FILM 215K 0.5% 1/6W
R428	NO USE	
R429	RN14BK2C5101F	RES. METAL FILM 5.1K 1% 1/6W
R430	RN14BK2C1003D	RES. METAL FILM 100K 0.5% 1/6W
R431	RN14BK2C5002D	RES. METAL FILM 50K 0.5% 1/6W
R432	RN14BK2C3002D	RES. METAL FILM 30K 0.5% 1/6W
R433	RN14BK2C2002D	RES. METAL FILM 20K 0.5% 1/6W
R434	NO USE	
R435	RN14BK2C1502F	RES. METAL FILM 15K 1% 1/6W
R436	RN14BK2C1003D	RES. METAL FILM 100K 0.5% 1/6W
R437	RN14BK2C5002D	RES. METAL FILM 50K 0.5% 1/6W
R438	RN14BK2C3002D	RES. METAL FILM 30K 0.5% 1/6W
R439	RN14BK2C2002D	RES. METAL FILM 20K 0.5% 1/6W
R440	RN14BK2C2101F	RES. METAL FILM 2.1K 1% 1/6W
R441	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R442	RN14BK2C1002F	RES. METAL FILM 10K 1% 1/6W
R443	RN14BK2C2002F	RES. METAL FILM 20K 1% 1/6W
R444	RN14BK2C4022F	RES. METAL FILM 40.2K 1% 1/6W
R445	RN14BK2C8062F	RES. METAL FILM 80.6K 1% 1/6W
R446	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R447	RD14BB2C221J	RES. CARBON 220 5% 1/6W
S101	S64-0603-05	LEVER SWITCH
S102	S60-0611-05	ATTENUATOR
S201	S64-0603-05	LEVER SWITCH
S202	S60-0611-05	ATTENUATOR
S401	S60-0613-05	ROTARY SWITCH
TC105	C91-1239-05	CAP. CERAMIC 15P 5% 50V
TC106	C05-0469-05	CAP. TRIMMER 10P
TC205	C05-0470-05	CAP. TRIMMER 20P
TC206	C05-0469-05	CAP. TRIMMER 10P

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
TC301	C05-0469-05	CAP. TRIMMER 10P
TC302	C05-0469-05	CAP. TRIMMER 10P
TC303	C05-0469-05	CAP. TRIMMER 10P
TH101	112-102-2	THERMISTOR
TH102	112-201-2FM	THERMISTOR
TH201	112-102-2	THERMISTOR
TH202	112-201-2FM	THERMISTOR
TH301	112-201-2FM	THERMISTOR
U1	KMS01	IC,LINEAR
U2	SN74LS158N	IC,QUAD 2-1 DATA SELECTOR/MPX
U3	SN74LS112AN	IC,DUAL J-K F.F.
U4	SN74LS00N	IC,QUAD 2-INPUT NAND GATE
U101	KMC13	IC,LINEAR
U102	KMC12	IC,LINEAR
U201	KMC13	IC,LINEAR
U202	KMC12	IC,LINEAR
U401	NJM072L	IC,J-FET INPUT OP AMP
U402	NJM072D	IC,J-FET INPUT OP AMP
U403	NJM4558L	IC,DUAL OP AMP
U404	TC4053BP	IC,TRIPLE 2-CH MPX/DE-MPX
U405	TC4053BP	IC,TRIPLE 2-CH MPX/DE-MPX
VR1	R12-0679-05	RES. SEMI FIXED 22KB
VR31	R12-0880-05	RES. SEMI FIXED 220
VR102	R12-0885-05	RES. SEMI FIXED 100
VR103	R12-0680-05	RES. SEMI FIXED 47K
VR104	R12-0885-05	RES. SEMI FIXED 100
VR105	R12-0679-05	RES. SEMI FIXED 22KB
VR106	R12-0679-05	RES. SEMI FIXED 22KB
VR202	R12-0885-05	RES. SEMI FIXED 100
VR203	R12-0680-05	RES. SEMI FIXED 47K
VR204	R12-0885-05	RES. SEMI FIXED 100
VR205	R12-0679-05	RES. SEMI FIXED 22KB
VR206	R12-0679-05	RES. SEMI FIXED 22KB
VR207	R12-0885-05	RES. SEMI FIXED 100
VR208	R12-0885-05	RES. SEMI FIXED 100
VR301	R12-0887-05	RES. SEMI FIXED 470
VR302	R12-0680-05	RES. SEMI FIXED 47K
VR303	R12-0679-05	RES. SEMI FIXED 22KB
VR402	R12-3599-05	RES. SEMI FIXED 22K
VR403	R12-3599-05	RES. SEMI FIXED 22K

CS-5275 VERTICAL UNIT

X73-2070-03

REF.NO	PARTS NO	NAME & DESCRIPTION
	A22-1308-03	SUB PANEL
	E21-0667-05	METAL TERMINAL
	E23-0149-05	GND TERMINAL
	F01-2318-04	HEAT SINK
	F10-1590-14	SHIELD PLATE,ATT
	F10-1668-04	SHIELD PLATE
	J30-0623-04	SPACER
	J73-0283-22	PCB (UNMOUNTED)
C2	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C7	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C30	C91-0747-05	CAP. CERAMIC 150P 10% 50V
C31	C91-0747-05	CAP. CERAMIC 150P 10% 50V
C32	C91-0748-05	CAP. CERAMIC 180P 10% 50V
C33	C91-2595-05	CAP. CERAMIC 68P 5% 50V
C34	CE04LW0J331M	CAP. ELECTRO 330 20% 6.3V
C35	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C36	C91-0745-05	CAP. CERAMIC 100P 10% 50V
C37	C91-0745-05	CAP. CERAMIC 100P 10% 50V
C38	C91-0745-05	CAP. CERAMIC 100P 10% 50V
C39	CE04CW1C470M	CAP. ELECTRO 47 20% 16V
C40	CE04LW1A470M	CAP. ELECTRO 47 20% 10V
C51	CE04LW1C101M	CAP. ELECTRO 100 20% 16V
C52	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C53	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C54	CE04LW1C330M	CAP. ELECTRO 33 20% 16V
C57	CE04HW1C220M	CAP. ELECTRO 22 20% 16V
C58	CC45FCH1H680J	CAP. CERAMIC 68P 5% 50V
C59	CE04LW1E470M	CAP. ELECTRO 47 20% 25V
C102	C91-2580-05	CAP. POLYESTER 0.047 10% 400V
C103	C91-2579-05	CAP. POLYESTER 0.01 10% 400V
C104	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C105	CE04LW1A101M	CAP. ELECTRO 100 20% 10V
C106	NO USE	
C107	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C110	CC45FCH1H680J	CAP. CERAMIC 68P 5% 50V
C111	NO USE	
C112	CC45FCH1H100D	CAP. CERAMIC 10P 0.5P 50V
C113	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C114	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C117	CE04CW1C470M	CAP. ELECTRO 47 20% 16V
C118	CE04LW1C101M	CAP. ELECTRO 100 20% 16V
C122	CC45FCH1H560J	CAP. CERAMIC 56P 5% 50V
C125	CF92FV1H332J	CAP. POLYESTER 3300P 5% 50V
C202	C91-2580-05	CAP. POLYESTER 0.047 10% 400V
C203	C91-2579-05	CAP. POLYESTER 0.01 10% 400V
C204	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C205	CE04LW1A101M	CAP. ELECTRO 100 20% 10V
C206	NO USE	
C207	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C210	CC45FCH1H680J	CAP. CERAMIC 68P 5% 50V
C211	NO USE	
C212	CC45FCH1H100D	CAP. CERAMIC 10P 0.5P 50V
C213	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C214	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C217	CE04CW1C470M	CAP. ELECTRO 47 20% 16V
C218	CE04LW1C101M	CAP. ELECTRO 100 20% 16V
C221	CE04LW1E470M	CAP. ELECTRO 47 20% 25V
C222	CC45FCH1H560J	CAP. CERAMIC 56P 5% 50V
C225	CF92FV1H332J	CAP. POLYESTER 3300P 5% 50V
C301	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C302	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V
C303	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V
C304	NO USE	
C305	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C306	CC45FCH1H220J	CAP. CERAMIC 22P 5% 50V
C307	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C313	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C314	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C315	NO USE	
C316	CE04EW1E470M	CAP. ELECTRO 47 20% 25V
C319	CE04LW1C470M	CAP. ELECTRO 47 20% 16V
C402	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C403	CE04LW1C470M	CAP. ELECTRO 47 20% 16V
C407	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C410	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C411	NO USE	
C412	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C418	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C901	CK45B1H102K	CAP. CERAMIC 1000P 10% 50V
D2	1SS132	DIODE
D31	1SS132	DIODE
D32	1SS132	DIODE
D35	1SS132	DIODE
D36	1SS132	DIODE
D37	1SS132	DIODE
D101	1SS132	DIODE
D102	1SS132	DIODE
D103	1SS132	DIODE
D104	1SS132	DIODE
D105	1SS132	DIODE
D106	1SS132	DIODE
D107	1SS132	DIODE
D108	1SS132	DIODE

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
D201	1SS132	DIODE
D202	1SS132	DIODE
D203	1SS132	DIODE
D204	1SS132	DIODE
D205	1SS132	DIODE
D206	1SS132	DIODE
D207	1SS132	DIODE
D208	1SS132	DIODE
D301	1SS132	DIODE
D302	1SS132	DIODE
D303	1SS132	DIODE
D304	1SS132	DIODE
D305	1SS132	DIODE
D306	1SS132	DIODE
D307	1SS132	DIODE
D308	1SS132	DIODE
D309	1SS132	DIODE
JW6	E38-0985-05	WIRE ASS'Y;V TO H TRG
JW10	E38-0986-05	WIRE ASS'Y;V TO H SWP
JW301	E38-0987-15	WIRE ASS'Y;CH3 INPUT
JW501	E38-0983-25	WIRE ASS'Y;SUB PANEL TO GND
L1	L79-0553-05	NOISE FILTER
L40	L40-2201-17	FERRI INDUCTOR 22UH 10%
L51	L40-4791-17	FERRI INDUCTOR 4.7UH 10%
L52	L40-4791-17	FERRI INDUCTOR 4.7UH 10%
L301	L40-4781-17	FERRI INDUCTOR 0.47UH 10%
P1	E04-0259-05	BNC RECEPTACLE
P2	E04-0259-05	BNC RECEPTACLE
P3	E04-0259-05	BNC RECEPTACLE
P4	E40-7515-05	PIN CONNECTOR 3P
P9	E40-7518-05	PIN CONNECTOR 6P
P12	E40-5066-05	PIN CONNECTOR 9P
P13	E40-7515-05	PIN CONNECTOR 3P
P201	E40-7432-05	PIN CONNECTOR 13P
P202	E40-7423-05	PIN CONNECTOR 4P
P203	E40-7430-05	PIN CONNECTOR 11P
P204	E40-7426-05	PIN CONNECTOR 7P
P205	E40-7422-05	PIN CONNECTOR 3P
P206	E40-7426-05	PIN CONNECTOR 7P
P207	E40-7432-05	PIN CONNECTOR 13P
P208	E40-7432-05	PIN CONNECTOR 13P
Q1	2SC1740S(R,S)	TR. SI, NPN
Q2	2SC3779(D)	TR. SI, NPN
Q3	2SC3779(D)	TR. SI, NPN
Q32	2SC3066(G)	TR. SI, NPN
Q33	2SC1740S(R,S)	TR. SI, NPN
Q34	2SA933S(R,S)	TR. SI, PNP
Q51	2SC1923(O)	TR. SI, NPN
Q101	2SC1923(O)	TR. SI, NPN
Q102	2SK404(E)	FET, N-CHANNEL
Q103	2SC1907	TR. SI, NPN
Q106	2SC3779(D)	TR. SI, NPN
Q107	2SC3779(D)	TR. SI, NPN
Q108	2SA1459(K)	TR. SI, PNP
Q109	2SA1459(K)	TR. SI, PNP
Q110	2SA1459(K)	TR. SI, PNP
Q111	2SA1459(K)	TR. SI, PNP
Q112	2SA1161	TR. SI, PNP
Q113	2SA1161	TR. SI, PNP
Q114	2SA1459(K)	TR. SI, PNP
Q201	2SC1923(O)	TR. SI, NPN
Q202	2SK404(E)	FET, N-CHANNEL
Q203	2SC1907	TR. SI, NPN
Q206	2SC3779(D)	TR. SI, NPN
Q207	2SC3779(D)	TR. SI, NPN
Q208	2SA1459(K)	TR. SI, PNP
Q209	2SA1459(K)	TR. SI, PNP
Q210	2SA1459(K)	TR. SI, PNP
Q211	2SA1459(K)	TR. SI, PNP
Q212	2SA1161	TR. SI, PNP
Q213	2SA1161	TR. SI, PNP
Q214	2SA1459(K)	TR. SI, PNP
Q215	2SC1740S(R,S)	TR. SI, NPN
Q302	2SC1923(O)	TR. SI, NPN
Q303	2SK404(E)	FET, N-CHANNEL
Q304	2SC1907	TR. SI, NPN
Q305	2SA1459(K)	TR. SI, PNP
Q306	2SA1459(K)	TR. SI, PNP
Q307	2SC1907	TR. SI, NPN
Q308	2SC1907	TR. SI, NPN
Q309	2SC1907	TR. SI, NPN
Q310	2SA1459(K)	TR. SI, PNP
Q311	2SA1459(K)	TR. SI, PNP
Q312	2SC1907	TR. SI, NPN
Q313	2SA1459(K)	TR. SI, PNP
Q314	2SA1459(K)	TR. SI, PNP
R1	RN14BK2C2002F	RES. METAL FILM 20K 1% 1/6W
R2	RN14BK2C2001F	RES. METAL FILM 2K 1% 1/6W
R3	RN14BK2C2001F	RES. METAL FILM 2K 1% 1/6W
R6	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R7	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R8	RN14BK2C3900F	RES. METAL FILM 390 1% 1/6W
R9	RN14BK2C3900F	RES. METAL FILM 390 1% 1/6W
R10	RN14BK2C7500F	RES. METAL FILM 750 1% 1/6W
R11	RN14BK2C7500F	RES. METAL FILM 750 1% 1/6W
R12	R92-1553-05	RES. SPECIAL POWER 620 5% 1W
R17	RN14BK2C6200F	RES. METAL FILM 620 1% 1/6W
R18	RN14BK2C6200F	RES. METAL FILM 620 1% 1/6W
R19	RN14BK2C39R0F	RES. METAL FILM 39 1% 1/6W
R20	RN14BK2C39R0F	RES. METAL FILM 39 1% 1/6W
R21	NO USE	
R22	RN14BK2C6802F	RES. METAL FILM 68K 1% 1/6W
R31	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R32	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R33	RD14BB2C751J	RES. CARBON 750 5% 1/6W
R34	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R35	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R36	R90-0645-05	RES. NETWORK 4X10K
R37	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R38	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R39	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R40	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R41	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R42	RD14BB2C100J	RES. CARBON 10 5% 1/6W
R43	RD14BB2C100J	RES. CARBON 10 5% 1/6W
R44	RD14BB2C223J	RES. CARBON 22K 5% 1/6W
R45	RD14BB2C223J	RES. CARBON 22K 5% 1/6W
R52	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R59	RD14BB2C432J	RES. CARBON 4.3K 5% 1/6W
R62	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R63	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R64	RD14BB2C133J	RES. CARBON 13K 5% 1/6W
R65	RD14BB2C910J	RES. CARBON 91 5% 1/6W
R66	RD14BB2C910J	RES. CARBON 91 5% 1/6W
R67	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R68	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R69	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R70	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R71	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R101	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R102	NO USE	
R103	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R104	RD14BB2C105J	RES. CARBON 1M 5% 1/6W
R107	RD14BB2C684J	RES. CARBON 680K 5% 1/6W
R108	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R109	RD14BB2C132J	RES. CARBON 1.3K 5% 1/6W
R110	NO USE	
R111	RD14BB2C160J	RES. CARBON 16 5% 1/6W
R112	RN14BK2C2700F	RES. METAL FILM 270 1% 1/6W
R113	NO USE	
R114	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R115	RN14BK2C1301F	RES. METAL FILM 1.3K 1% 1/6W
R116	RN14BK2C1301F	RES. METAL FILM 1.3K 1% 1/6W
R117	RN14BK2C3301F	RES. METAL FILM 3.3K 1% 1/6W
R118	RN14BK2C2401F	RES. METAL FILM 2.4K 1% 1/6W
R119	RN14BK2C5100F	RES. METAL FILM 510 1% 1/6W
R120	RD14BB2C301J	RES. CARBON 300 5% 1/6W
R121	RN14BK2C1004F	RES. METAL FILM 1M 1% 1/6W
R122	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R123	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R124	RD14BB2C103J	RES. CARBON 10K 5% 1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R125	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R126	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R127	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R128	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R129	NO USE				
R130	RD14BB2C823J	RES. CARBON	82K	5%	1/6W
R131	NO USE				
R132	RN14BK2C4701F	RES. METAL FILM	4.7K	1%	1/6W
R133	RN14BK2C47R0F	RES. METAL FILM	47	1%	1/6W
R134	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R135	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R136	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R137	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R138	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R139	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R140	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R141	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R142	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R143	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R144	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R145	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R146	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R147	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W
R148	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R149	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R150	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R151	RD14BB2C513J	RES. CARBON	51K	5%	1/6W
R152	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R153	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R154	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R155	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R156	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R157	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R158	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R159	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R160	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R161	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R162	RD14BB2C820J	RES. CARBON	82	5%	1/6W
R163	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R164	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R165	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R166	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R170	R92-1578-05	RES. LINEAR PCT	3.9K	5%	1/6W
R171	NO USE				
R172	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R173	NO USE				
R174	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R175	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R176	NO USE				
R177	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R201	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R202	NO USE				
R203	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R204	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R207	RD14BB2C684J	RES. CARBON	680K	5%	1/6W
R208	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R209	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R210	NO USE				
R211	RD14BB2C160J	RES. CARBON	16	5%	1/6W
R212	RN14BK2C2200F	RES. METAL FILM	220	1%	1/6W
R213	NO USE				
R214	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R215	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R216	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R217	RN14BK2C3301F	RES. METAL FILM	3.3K	1%	1/6W
R218	RN14BK2C2401F	RES. METAL FILM	2.4K	1%	1/6W
R219	RN14BK2C5100F	RES. METAL FILM	510	1%	1/6W
R220	RD14BB2C301J	RES. CARBON	300	5%	1/6W
R221	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W
R222	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R223	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R224	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R225	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R226	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R227	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R228	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R229	NO USE				
R230	RD14BB2C823J	RES. CARBON	82K	5%	1/6W
R231	NO USE				
R232	RN14BK2C4701F	RES. METAL FILM	4.7K	1%	1/6W
R233	RN14BK2C47R0F	RES. METAL FILM	47	1%	1/6W
R234	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R235	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R236	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R237	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R238	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R239	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R240	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R241	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R242	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R243	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R244	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R245	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R246	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R247	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W
R248	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R249	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R250	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R251	RD14BB2C513J	RES. CARBON	51K	5%	1/6W
R252	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R253	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R254	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R255	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R256	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R257	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R258	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R259	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R260	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R261	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R262	RD14BB2C820J	RES. CARBON	82	5%	1/6W
R263	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R264	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R265	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R266	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R267	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R268	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R269	RD14BB2C271J	RES. CARBON	270	5%	1/6W
R270	R92-1578-05	RES. LINEAR PCT	3.9K	5%	1/6W
R271	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R272	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R273	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R274	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R275	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R276	NO USE				
R277	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R300	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R301	RN14BK2C8003F	RES. METAL FILM	800K	1%	1/6W
R302	RN14BK2C2003F	RES. METAL FILM	200K	1%	1/6W
R303	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R304	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R305	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R306	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R307	RD14BB2C822J	RES. CARBON	8.2K	5%	1/6W
R308	RD14BB2C302J	RES. CARBON	3K	5%	1/6W
R309	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R310	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R311	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R312	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R313	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R314	RD14BB2C131J	RES. CARBON	130	5%	1/6W
R315	NO USE				
R316	RN14BK2C7500F	RES. METAL FILM	750	1%	1/6W
R317	RD14BB2C112J	RES. CARBON	1.1K	5%	1/6W
R318	RD14BB2C112J	RES. CARBON	1.1K	5%	1/6W
R319	RN14BK2C4300F	RES. METAL FILM	430	1%	1/6W
R320	RN14BK2C3301F	RES. METAL FILM	3.3K	1%	1/6W
R321	RN14BK2C6801F	RES. METAL FILM	6.8K	1%	1/6W
R322	RN14BK2C8200F	RES. METAL FILM	820	1%	1/6W
R323	RN14BK2C8200F	RES. METAL FILM	820	1%	1/6W
R324	RD14BB2C203J	RES. CARBON	20K	5%	1/6W
R325	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R326	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R327	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R328	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R329	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R330	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R331	NO USE				
R332	RD14BB2C113J	RES. CARBON	11K	5%	1/6W
R333	RD14BB2C302J	RES. CARBON	3K	5%	1/6W
R334	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R335	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R336	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R337	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R338	R92-1577-05	RES. LINEAR PCT	1K	5%	1/6W
R339	NO USE				
R340	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R341	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R342	NO USE				
R343	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R344	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R345	R92-1579-05	RES. LINEAR PCT	220		
R346	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R347	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R348	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R414	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R415	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R416	RD14BB2C104J	RES. CARBON	100K	5%	1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R417	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R418	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R422	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R423	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R424	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R425	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R426	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R429	RN14BK2C5101F	RES. METAL FILM	5.1K	1%	1/6W
R430	RN14BK2C1003D	RES. METAL FILM	100K	0.5%	1/6W
R431	RN14BK2C5002D	RES. METAL FILM	50K	0.5%	1/6W
R432	RN14BK2C3002D	RES. METAL FILM	30K	0.5%	1/6W
R433	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R434	NO USE				
R435	RN14BK2C1502F	RES. METAL FILM	15K	1%	1/6W
R436	RN14BK2C1003D	RES. METAL FILM	100K	0.5%	1/6W
R437	RN14BK2C5002D	RES. METAL FILM	50K	0.5%	1/6W
R438	RN14BK2C3002D	RES. METAL FILM	30K	0.5%	1/6W
R439	RN14BK2C2002D	RES. METAL FILM	20K	0.5%	1/6W
R446	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R447	RD14BB2C221J	RES. CARBON	220	5%	1/6W
S101	S64-0603-05	LEVER SWITCH			
S102	S60-0610-05	ATTENUATOR			
S201	S64-0603-05	LEVER SWITCH			
S202	S60-0610-05	ATTENUATOR			
S401	S60-0613-05	ROTARY SWITCH			
TC105	C91-1239-05	CAP. CERAMIC	15P	5%	50V
TC106	C05-0469-05	CAP. TRIMMER	10P		
TC205	C05-0470-05	CAP. TRIMMER	20P		
TC206	C05-0469-05	CAP. TRIMMER	10P		
TC301	C05-0469-05	CAP. TRIMMER	10P		
TC302	C05-0469-05	CAP. TRIMMER	10P		
TC303	C05-0469-05	CAP. TRIMMER	10P		
TH101	112-102-2	THERMISTOR			
TH102	112-201-2FM	THERMISTOR			
TH201	112-102-2	THERMISTOR			
TH202	112-201-2FM	THERMISTOR			
TH301	112-201-2FM	THERMISTOR			
U1	KMS01	IC,LINEAR			
U2	SN74LS158N	IC,QUAD 2-1 DATA SELECTOR/MPX			
U3	SN74LS112AN	IC,DUAL J-K F.F.			
U4	SN74LS00N	IC,QUAD 2-INPUT NAND GATE			
U101	KMC13	IC,LINEAR			
U102	KMC12	IC,LINEAR			
U201	KMC13	IC,LINEAR			
U202	KMC12	IC,LINEAR			
U404	TC4053BP	IC,TRIPLE 2-CH MPX/DE-MPX			
U405	TC4053BP	IC,TRIPLE 2-CH MPX/DE-MPX			
VR1	R12-0679-05	RES. SEMI FIXED 22KB			
VR31	R12-0880-05	RES. SEMI FIXED 220			
VR102	R12-0885-05	RES. SEMI FIXED 100			
VR103	R12-0680-05	RES. SEMI FIXED 47K			
VR104	R12-0885-05	RES. SEMI FIXED 100			
VR105	R12-0679-05	RES. SEMI FIXED 22KB			
VR106	R12-0679-05	RES. SEMI FIXED 22KB			
VR202	R12-0885-05	RES. SEMI FIXED 100			
VR203	R12-0680-05	RES. SEMI FIXED 47K			
VR204	R12-0885-05	RES. SEMI FIXED 100			
VR205	R12-0679-05	RES. SEMI FIXED 22KB			
VR206	R12-0679-05	RES. SEMI FIXED 22KB			
VR207	R12-0885-05	RES. SEMI FIXED 100			
VR208	R12-0885-05	RES. SEMI FIXED 100			
VR301	R12-0887-05	RES. SEMI FIXED 470			
VR302	R12-0680-05	RES. SEMI FIXED 47K			
VR303	R12-0679-05	RES. SEMI FIXED 22KB			
VR402	R12-3599-05	RES. SEMI FIXED 22K			
VR403	R12-3599-05	RES. SEMI FIXED 22K			

CS-5270 HORIZONTAL UNIT

X74-1580-02

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E23-0149-05	GND TERMINAL			
	E23-0557-14	EARTH LUG,THERMAL FUSE			
	F01-0867-05	HEAT SINK,HIGH VOLTAGE			
	F01-2316-05	HEAT SINK,POWER			
	J73-0284-22	PCB (UNMOUNTED)			
	N09-0623-04	SCREW,SEMS PAN HD M3X8			
C1	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C2	NO USE				
C3	C91-2595-05	CAP. CERAMIC	68P	5%	50V
C4	CF92FV1H103J	CAP. POLYESTER	0.01	5%	50V
C5	C91-2596-05	CAP. CERAMIC	82P	5%	50V
C6	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C7	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
C8	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C9	NO USE				
C10	CK45FB1H222K	CAP. CERAMIC	2200P	10%	50V
C11	C91-0757-05	CAP. CERAMIC	1000P	10%	50V
C12	C91-2538-05	CAP. MYLAR	0.1		63V
C13	C91-2593-05	CAP. CERAMIC	47P	5%	50V
C14	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C15	NO USE				
C16	CE04LW1E100M	CAP. ELECTRO	10	20%	25V
C17	CE04LW1H010M	CAP. ELECTRO	1	20%	50V
C18	CE04LW1H010M	CAP. ELECTRO	1	20%	50V
C19	CF92FV1H682J	CAP. POLYESTER	6800P	5%	50V
C20	CF92FV1H222J	CAP. POLYESTER	2200P	5%	50V
C21	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C22	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C23	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C24	NO USE				
C25	CE04LW1E100M	CAP. ELECTRO	10	20%	25V
C26	CF92FV1H684J	CAP. POLYESTER	0.68	5%	50V
C27	CF92FV1H684J	CAP. POLYESTER	0.68	5%	50V
C28	CE04HW1E220M	CAP. ELECTRO	22	20%	25V
C29	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C30	C91-2538-05	CAP. MYLAR	0.1		63V
C31	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C32	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C33	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C34	CE04LW1C331M	CAP. ELECTRO	330	20%	16V
C37	CC45FSL1H221J	CAP. CERAMIC	220P	5%	50V
C38	C91-0745-05	CAP. CERAMIC	100P	10%	50V
C39	C91-0745-05	CAP. CERAMIC	100P	10%	50V
C101	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C102	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C103	CF92FV1H332J	CAP. POLYESTER	3300P	5%	50V
C104	C91-2582-05	CAP. POLYESTER	0.47	5%	100V
C105	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C106	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V
C107	CE04HW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C108	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C109	NO USE				
C110	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C111	CF92FV1H104J	CAP. POLYESTER	0.1	5%	50V
C112	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C113	CC45FCH1H330J	CAP. CERAMIC	33P	5%	50V
C114	CE04LW1A220M	CAP. ELECTRO	22	20%	10V
C115	C91-2604-05	CAP. CERAMIC	390P	5%	50V
C116	C91-2598-05	CAP. CERAMIC	120P	5%	50V
C117	CC45FCH1H680J	CAP. CERAMIC	68P	5%	50V
C118	CC45FCH1H680J	CAP. CERAMIC	68P	5%	50V
C119	NO USE				
C120	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C121	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C122	CC45FCH1H390J	CAP. CERAMIC	39P	5%	50V
C123	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C124	C91-2582-05	CAP. POLYESTER	0.47	5%	100V
C125	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C126	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C127	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C128	C91-2538-05	CAP. MYLAR	0.1		63V
C129	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C132	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C135	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C136	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C137	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C138	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C139	CC45FSL1H331J	CAP. CERAMIC	330P	5%	50V
C140	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C141	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C142	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C143	C91-0737-05	CAP. CERAMIC	47P	5%	50V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
C144	C91-0737-05	CAP. CERAMIC	47P	5%	50V
C145	CE04LW1C100M	CAP. ELECTRO	10	20%	16V
C146	CC45FSL1H030C	CAP. CERAMIC	3P	0.25P	50V
C201	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C202	NO USE				
C203	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C204	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C205	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C206	NO USE				
C207	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C208	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C209	CC45FCH2H020C	CAP. CERAMIC	2P	0.25P	500V
C210	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C211	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C212	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C213	CK45FB2H102K	CAP. CERAMIC	1000P	10%	500V
C214	CK45FB2H102K	CAP. CERAMIC	1000P	10%	500V
C215	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C216	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C217	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C218	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C219	NO USE				
C220	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C221	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C222	CE04LW1E221M	CAP. ELECTRO	220	20%	25V
C223	CE04LW1H101M	CAP. ELECTRO	100	20%	50V
C224	CK45FB1H472K	CAP. CERAMIC	4700P	10%	50V
C227	CC45FCH2H101J	CAP. CERAMIC	100P	5%	500V
C228	CK45FB1H222K	CAP. CERAMIC	2200P	10%	50V
C229	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C230	CK45E3D102P	CAP. CERAMIC	1000P		2KV
C231	C91-2581-05	CAP. CERAMIC	0.01	5%	2KV
C232	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C233	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C234	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C301	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C302	CC45FSL1H331J	CAP. CERAMIC	330P	5%	50V
C303	C91-0713-05	CAP. CERAMIC	2.2	10%	50V
C306	C91-1361-05	CAP. MYLAR	0.01	10%	100V
C307	C91-2585-05	CAP. MYLAR	0.01	10%	250V
C308	C91-2587-05	CAP. MYLAR	0.1	10%	250V
C309	C91-1361-05	CAP. MYLAR	0.01	10%	100V
C310	C91-2587-05	CAP. MYLAR	0.1	10%	250V
C311	C91-2585-05	CAP. MYLAR	0.01	10%	250V
C314	CK45FB2H152K	CAP. CERAMIC	1500P	10%	500V
C315	NO USE				
C316	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C317	NO USE				
C318	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C319	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C320	NO USE				
C321	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C322	CE04LW1A221M	CAP. ELECTRO	220	20%	10V
C323	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C324	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C325	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C401	CE04W2E470M	CAP. ELECTRO	47	20%	250V
C402	CE04W2E100M	CAP. ELECTRO	10	20%	250V
C403	CE04LW1E220M	CAP. ELECTRO	22	20%	25V
C404	CE04EW2A471M	CAP. ELECTRO	470	20%	100V
C405	CE04LW2A220M	CAP. ELECTRO	22	20%	100V
C406	CE04EW1E472M	CAP. ELECTRO	4700	20%	25V
C407	CE04LW1C331M	CAP. ELECTRO	330	20%	16V
C408	CE04EW1E472M	CAP. ELECTRO	4700	20%	25V
C409	CE04EW1C332M	CAP. ELECTRO	3300	20%	16V
C410	CE04LW0J471M	CAP. ELECTRO	470	20%	6.3V
C411	CE04LW1C331M	CAP. ELECTRO	330	20%	16V
C412	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C413	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C414	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C415	CE04EW1E102M	CAP. ELECTRO	1000	20%	25V
C416	CE04EW1E102M	CAP. ELECTRO	1000	20%	25V
C417	C91-0761-05	CAP. CERAMIC	2200P	20%	50V
C418	C91-0757-05	CAP. CERAMIC	1000P	10%	50V
C801	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C901	CF92V1H103J	CAP. POLYESTER	0.01	5%	50V
D1	MA700	DIODE			
D2	MA700	DIODE			
D3	MA700	DIODE			
D4	MA700	DIODE			
D5	MA700	DIODE			
D6	1SS132	DIODE			
D7	1SS132	DIODE			
D8	1SS132	DIODE			
D9	1SS132	DIODE			
D10	1SS132	DIODE			
D11	1SS132	DIODE			
D12	MA700	DIODE			
D13	1SS132	DIODE			
D14	1SS132	DIODE			
D15	1SS132	DIODE			
D16	1SS132	DIODE			
D17	1SS132	DIODE			
D18	1SS132	DIODE			
D101	1SS132	DIODE			
D102	1SS132	DIODE			
D103	1SS132	DIODE			
D104	1SS132	DIODE			
D105	1SS132	DIODE			
D106	1SS132	DIODE			
D107	1SS132	DIODE			
D108	1SS132	DIODE			
D109	MA700	DIODE			
D110	1SS132	DIODE			
D111	1SS132	DIODE			
D112	1SS132	DIODE			
D113	1SS132	DIODE			
D114	MA700	DIODE			
D115	1SS132	DIODE			
D116	1SS132	DIODE			
D117	1SS132	DIODE			
D118	1SS132	DIODE			
D119	1SS132	DIODE			
D120	1SS132	DIODE			
D121	1SS132	DIODE			
D122	1SS132	DIODE			
D123	1SS132	DIODE			
D124	1SS132	DIODE			
D125	1SS132	DIODE			
D126	1SS132	DIODE			
D127	1SS132	DIODE			
D128	1SS132	DIODE			
D129	1SS132	DIODE			
D130	MA700	DIODE			
D131	NO USE				
D132	MA700	DIODE			
D133	MA700	DIODE			
D201	1SS132	DIODE			
D202	1SS132	DIODE			
D203	1SS83	DIODE			
D204	1SS83	DIODE			
D205	1SS83	DIODE			
D206	1SS83	DIODE			
D207	1SS83	DIODE			
D208	1SS83	DIODE			
D209	1SS83	DIODE			
D210	1SS83	DIODE			
D211	1SS132	DIODE			
D212	1SS132	DIODE			
D213	1SS132	DIODE			
D301	MA700	DIODE			
D302	1SS132	DIODE			
D303	MTZ3.0JA	DIODE,ZENER			
D304	1SS132	DIODE			
D305	1SS132	DIODE			
D306	MA700	DIODE			
D307	MA700	DIODE			
D308	TLR112	LED,RED			
D309	TLR112	LED,RED			
D312	MTZ5.1JB	DIODE,ZENER			
D313	1SS132	DIODE			
D314	NO USE				
D315	1SS132	DIODE			
D316	MTZ3.0JA	DIODE,ZENER			
D401	S1VB60	DIODE,STACK			
D402	S1VB60	DIODE,STACK			
D403	S4VB20F	DIODE,STACK			
D404	S1VB60	DIODE,STACK			
D405	1SS132	DIODE			
D406	1SS132	DIODE			
D407	MTZ13JC	DIODE,ZENER			
D408	MTZ13JC	DIODE,ZENER			
D409	MTZ7.5JA	DIODE,ZENER			
D801	MA700	DIODE			
F201	F53-0107-05	THERMAL FUSE	400MA/125V		

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
JW1	E38-1005-05	WIRE ASS'Y:3P			
JW2	E38-1006-05	WIRE ASS'Y:6P			
JW9	E38-0988-15	WIRE ASS'Y:H TO V			
JW14	E38-0989-05	WIRE ASS'Y:H TO FINAL			
JW18	E38-0990-05	WIRE ASS'Y:H TO CRT			
JW19	E38-0991-05	WIRE ASS'Y:H TO BNC			
K301	S76-0627-05	RELAY			
L101	L79-0553-05	NOISE FILTER			
L201	L40-1545-06	FERRI INDUCTOR	150MH	5%	
L202	L40-1011-04	FERRI INDUCTOR	100UH	10%	
L203	L40-1011-04	FERRI INDUCTOR	100UH	10%	
L204	L40-3925-05	FERRI INDUCTOR	3.9MH	5%	
L301	L40-1001-11	FERRI INDUCTOR	10UH	10%	
NL201	NE-38B	NEON LAMP			
NL202	NE-38B	NEON LAMP			
NL203	NE-38B	NEON LAMP			
NL204	NE-38B	NEON LAMP			
P6	E40-7515-05	PIN CONNECTOR	3P		
P7	E40-7519-05	PIN CONNECTOR	4P		
P8	E40-7040-05	PIN CONNECTOR	13P		
P9	NO USE				
P10	E40-5066-05	PIN CONNECTOR	9P		
P15	E40-5067-05	PIN CONNECTOR	10P		
P16	E40-5069-05	PIN CONNECTOR	12P		
P17	E40-3306-05	PIN CONNECTOR	9P		
P20	E40-3299-05	PIN CONNECTOR	2P		
P24	E40-3243-05	PIN CONNECTOR	8P		
Q3	2SC1740S(R,S)	TR. SI, NPN			
Q4	2SC1923(O)	TR. SI, NPN			
Q5	2SC1923(O)	TR. SI, NPN			
Q6	2SC3779(D)	TR. SI, NPN			
Q7	2SC3779(D)	TR. SI, NPN			
Q8	NO USE				
Q9	2SA1459(K)	TR. SI, PNP			
Q10	2SC1740S(R,S)	TR. SI, NPN			
Q11	2SC1740S(R,S)	TR. SI, NPN			
Q12	2SA1005(K)	TR. SI, PNP			
Q13	2SC1740S(R,S)	TR. SI, NPN			
Q14	2SC1740S(R,S)	TR. SI, NPN			
Q15	2SA1005(K)	TR. SI, PNP			
Q16	2SA1005(K)	TR. SI, PNP			
Q17	2SA933S(R,S)	TR. SI, PNP			
Q18	2SA933S(R,S)	TR. SI, PNP			
Q19	2SC1740S(R,S)	TR. SI, NPN			
Q20	2SA933S(R,S)	TR. SI, PNP			
Q21	2SC1907	TR. SI, NPN			
Q28	2SA1459(K)	TR. SI, PNP			
Q101	2SK170(V)	FET, N-CHANNEL			
Q102	2SC1923(O)	TR. SI, NPN			
Q103	2SA933S(R,S)	TR. SI, PNP			
Q104	2SC1740S(R,S)	TR. SI, NPN			
Q105	2SC1740S(R,S)	TR. SI, NPN			
Q106	2SC1740S(R,S)	TR. SI, NPN			
Q107	2SK170(V)	FET, N-CHANNEL			
Q108	2SC1923(O)	TR. SI, NPN			
Q109	2SC3066(G)	TR. SI, NPN			
Q110	2SA1459(K)	TR. SI, PNP			
Q111	2SA933S(R,S)	TR. SI, PNP			
Q112	2SA933S(R,S)	TR. SI, PNP			
Q113	2SA1005(K)	TR. SI, PNP			
Q114	2SA1005(K)	TR. SI, PNP			
Q115	2SA1005(K)	TR. SI, PNP			
Q116	2SA1005(K)	TR. SI, PNP			
Q117	2SC1923(O)	TR. SI, NPN			
Q118	2SC1923(O)	TR. SI, NPN			
Q119	2SA933S(R,S)	TR. SI, PNP			
Q120	2SA1459(K)	TR. SI, PNP			
Q121	2SC1923(O)	TR. SI, NPN			
Q122	2SC1740S(R,S)	TR. SI, NPN			
Q123	2SC1740S(R,S)	TR. SI, NPN			
Q124	2SC1740S(R,S)	TR. SI, NPN			
Q125	2SC1740S(R,S)	TR. SI, NPN			
Q126	2SC1740S(R,S)	TR. SI, NPN			
Q127	2SA1005(K)	TR. SI, PNP			
Q151	2SA1459(K)	TR. SI, PNP			
Q152	2SA1459(K)	TR. SI, PNP			
Q158	2SA1459(K)	TR. SI, PNP			
Q201	2SA933S(R,S)	TR. SI, PNP			
Q202	2SA933S(R,S)	TR. SI, PNP			
Q203	2SC1923(O)	TR. SI, NPN			
Q204	2SC1740S(R,S)	TR. SI, NPN			
Q205	2SA933S(R,S)	TR. SI, PNP			
Q206	2SC2910(S)	TR. SI, NPN			
Q207	2SA1208(S)	TR. SI, PNP			
Q208	2SC2910(S)	TR. SI, NPN			
Q209	2SA1208(S)	TR. SI, PNP			
Q210	2SC2551(O)	TR. SI, NPN			
Q211	2SC2551(O)	TR. SI, NPN			
Q212	2SA933S(R,S)	TR. SI, PNP			
Q213	2SD613(E)	TR. SI, NPN			
Q301	2SC1740S(R,S)	TR. SI, NPN			
Q302	2SC1740S(R,S)	TR. SI, NPN			
Q303	2SC1740S(R,S)	TR. SI, NPN			
Q304	2SC1740S(R,S)	TR. SI, NPN			
Q305	2SA933S(R,S)	TR. SI, PNP			
Q306	2SA1005(K)	TR. SI, PNP			
Q307	2SA1005(K)	TR. SI, PNP			
Q308	2SC1740S(R,S)	TR. SI, NPN			
Q309	2SC1740S(R,S)	TR. SI, NPN			
Q310	2SA933S(R,S)	TR. SI, PNP			
Q311	2SA933S(R,S)	TR. SI, PNP			
Q312	2SC1740S(R,S)	TR. SI, NPN			
Q313	2SC1740S(R,S)	TR. SI, NPN			
Q314	2SC1907	TR. SI, NPN			
Q315	2SC1907	TR. SI, NPN			
Q316	2SA1459(K)	TR. SI, PNP			
Q317	2SA1459(K)	TR. SI, PNP			
Q318	2SC1907	TR. SI, NPN			
Q319	2SC1907	TR. SI, NPN			
Q320	2SC4732(E)	TR. SI, NPN			
Q321	2SC4732(E)	TR. SI, NPN			
Q322	2SA1828(E)	TR. SI, PNP			
Q323	2SA1828(E)	TR. SI, PNP			
Q324	2SA933S(R,S)	TR. SI, PNP			
Q401	2SA1499(P)	TR. SI, PNP			
Q402	2SC2551(O)	TR. SI, NPN			
Q403	2SA1304	TR. SI, PNP			
Q404	2SC2551(O)	TR. SI, NPN			
Q405	2SB1015(Y)	TR. SI, PNP			
Q406	2SD1406(Y)	TR. SI, NPN			
Q407	2SB1015(Y)	TR. SI, PNP			
R1	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R2	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R3	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R4	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R5	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R6	RD14BB2C822J	RES. CARBON	8.2K	5%	1/6W
R7	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R8	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R9	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R10	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R11	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R12	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R13	NO USE				
R14	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R15	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R16	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R17	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R18	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R19	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R20	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R21	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R22	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R23	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R24	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R25	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R26	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R27	RD14BB2C750J	RES. CARBON	75	5%	1/6W
R28	RD14BB2C750J	RES. CARBON	75	5%	1/6W
R29	RD14BB2C680J	RES. CARBON	68	5%	1/6W
R30	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R31	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R32	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R33	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R34	NO USE				
R35	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R36	NO USE				

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R37	RD14BB2C391J	RES. CARBON	390	5%	1/6W
R38	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R39	R90-0660-05	RES. NETWORK	4X1K		
R40	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R41	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R42	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R43	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R44	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R45	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R46	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R47	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R48	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R49	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R50	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R51	RD14BB2C123J	RES. CARBON	12K	5%	1/6W
R52	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R53	RD14BB2C113J	RES. CARBON	11K	5%	1/6W
R54	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R55	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R56	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R57	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R58	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R59	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R60	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R61	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R62	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R63	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R64	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R65	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R66	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R67	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R68	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R69	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R70	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R71	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R72	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R73	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R74	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R75	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R76	NO USE				
R77	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R78	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R79	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R80	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R81	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R82	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R83	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R84	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R85	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R86	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R87	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R88	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R89	NO USE				
R90	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R91	RD14BB2C203J	RES. CARBON	20K	5%	1/6W
R101	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R102	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R103	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R104	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R105	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R106	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R107	RD14BB2C912J	RES. CARBON	9.1K	5%	1/6W
R108	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R109	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R110	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R111	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R112	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R113	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R114	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R115	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R116	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R117	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R118	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W
R119	RD14BB2C243J	RES. CARBON	24K	5%	1/6W
R120	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R121	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R122	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R123	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R124	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R125	RD14BB2C330J	RES. CARBON	33	5%	1/6W
R126	RD14BB2C120J	RES. CARBON	12	5%	1/6W
R127	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R128	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R129	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R130	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R131	RD14BB2C912J	RES. CARBON	9.1K	5%	1/6W
R132	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R133	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R134	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R135	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R136	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R137	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R138	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R139	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R140	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R141	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R142	NO USE				
R143	RD14BB2C302J	RES. CARBON	3K	5%	1/6W
R144	RD14BB2C302J	RES. CARBON	3K	5%	1/6W
R145	RD14BB2C131J	RES. CARBON	130	5%	1/6W
R146	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R147	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R148	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R149	RD14BB2C183J	RES. CARBON	18K	5%	1/6W
R150	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R151	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R152	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R153	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R154	RD14BB2C684J	RES. CARBON	680K	5%	1/6W
R155	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R156	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R157	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R158	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R159	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R160	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R161	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R162	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R163	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R164	RD14BB2C111J	RES. CARBON	110	5%	1/6W
R165	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R166	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R167	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R168	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R169	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R170	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R171	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R172	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R173	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R174	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R175	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R176	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R177	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R178	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R179	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W
R180	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R181	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R182	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R183	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R184	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R185	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R186	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R187	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R188	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R189	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R190	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R191	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R192	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R193	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R194	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R195	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R196	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R197	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R198	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R199	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R202	RD14BB2C113J	RES. CARBON	11K	5%	1/6W
R203	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R204	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R205	NO USE				
R206	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W
R207	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R208	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R209	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R210	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R214	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R215	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R216	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R217	NO USE				
R218	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R219	RD14BB2C134J	RES. CARBON	130K	5%	1/6W
R220	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R221	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R222	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R223	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R224	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W
R225	RD14BB2C134J	RES. CARBON	130K	5%	1/6W
R226	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R227	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R228	RD14BB2C753J	RES. CARBON	75K	5%	1/6W
R229	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R230	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
R231	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W
R232	RD14BB2C134J	RES. CARBON 130K 5% 1/6W
R233	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R234	RD14BB2C474J	RES. CARBON 470K 5% 1/6W
R235	RD14BB2C474J	RES. CARBON 470K 5% 1/6W
R236	R92-1563-05	RES. METALGLACE 10M 5% 1/4W
R237	R92-1563-05	RES. METALGLACE 10M 5% 1/4W
R238	R92-1562-05	RES. METALGLACE 8.2M 5% 1/4W
R239	R92-1561-05	RES. METALGLACE 3.9M 5% 1/4W
R240	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R241	RD14BB2C474J	RES. CARBON 470K 5% 1/6W
R242	RD14BB2C683J	RES. CARBON 68K 5% 1/6W
R243	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R244	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R245	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R246	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R247	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R248	RN14BK2C1203F	RES. METAL FILM 120K 1% 1/6W
R249	R92-1564-05	RES. METALGLACE 15M 1% 1/2W
R250	RD14BB2C124J	RES. CARBON 120K 5% 1/6W
R251	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R252	RD14BB2C392J	RES. CARBON 3.9K 5% 1/6W
R253	RD14BB2C153J	RES. CARBON 15K 5% 1/6W
R254	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R255	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R256	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R257	RD14BB2C151J	RES. CARBON 150 5% 1/6W
R258	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R259	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R260	RN14BK2C1801F	RES. METAL FILM 1.8K 1% 1/6W
R261	RN14BK2C1801F	RES. METAL FILM 1.8K 1% 1/6W
R262	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R263	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W
R264	RD14BB2C303J	RES. CARBON 30K 5% 1/6W
R265	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W
R266	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R267	RD14BB2C224J	RES. CARBON 220K 5% 1/6W
R268	RD14BB2C204J	RES. CARBON 200K 5% 1/6W
R269	R92-1573-05	RES. LINEAR PCT 2.7K 5% 1/6W
R300	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R301	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R302	RD14BB2C821J	RES. CARBON 820 5% 1/6W
R303	RD14BB2C821J	RES. CARBON 820 5% 1/6W
R304	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R305	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R306	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R307	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R308	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R309	RD14BB2C242J	RES. CARBON 2.4K 5% 1/6W
R310	RD14BB2C242J	RES. CARBON 2.4K 5% 1/6W
R311	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R312	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R313	RD14BB2C182J	RES. CARBON 1.8K 5% 1/6W
R314	RD14BB2C432J	RES. CARBON 4.3K 5% 1/6W
R315	RD14BB2C132J	RES. CARBON 1.3K 5% 1/6W
R316	RD14BB2C153J	RES. CARBON 15K 5% 1/6W
R317	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R318	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R319	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R320	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R321	RD14BB2C183J	RES. CARBON 18K 5% 1/6W
R322	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R323	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R324	RD14BB2C242J	RES. CARBON 2.4K 5% 1/6W
R325	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
R326	RD14BB2C301J	RES. CARBON 300 5% 1/6W
R327	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R328	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R329	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R330	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R331	RD14BB2C271J	RES. CARBON 270 5% 1/6W
R332	RD14BB2C132J	RES. CARBON 1.3K 5% 1/6W
R333	RD14BB2C432J	RES. CARBON 4.3K 5% 1/6W
R334	RD14BB2C432J	RES. CARBON 4.3K 5% 1/6W
R335	RD14BB2C243J	RES. CARBON 24K 5% 1/6W
R336	RD14BB2C243J	RES. CARBON 24K 5% 1/6W
R337	RD14BB2C241J	RES. CARBON 240 5% 1/6W
R338	RD14BB2C241J	RES. CARBON 240 5% 1/6W
R339	NO USE	
R340	RN14BK2C8200F	RES. METAL FILM 820 1% 1/6W
R341	RN14BK2C8200F	RES. METAL FILM 820 1% 1/6W
R342	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
R343	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R344	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R345	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R346	RD14BB2C561J	RES. CARBON 560 5% 1/6W
R347	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R348	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R349	R92-1552-05	RES. LINEAR PCT 180
R350	RD14BB2C163J	RES. CARBON 16K 5% 1/6W
R351	NO USE	
R352	RD14BB2C153J	RES. CARBON 15K 5% 1/6W
R353	RD14BB2C242J	RES. CARBON 2.4K 5% 1/6W
R354	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R355	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R356	NO USE	
R357	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R358	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R359	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R360	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R361	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R362	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R363	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R364	RN14BK2C3901F	RES. METAL FILM 3.9K 1% 1/6W
R365	RN14BK2C6201F	RES. METAL FILM 6.2K 1% 1/6W
R366	R92-1560-05	RES. LINEAR PCT 2K
R367	RD14BB2C393J	RES. CARBON 39K 5% 1/6W
R368	RD14BB2C622J	RES. CARBON 6.2K 5% 1/6W
R369	RD14BB2C204J	RES. CARBON 200K 5% 1/6W
R370	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R371	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R372	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R373	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R374	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R375	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R376	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R377	R92-1558-05	RES. SPECIAL POWER 39K 5% 1W
R378	R92-1558-05	RES. SPECIAL POWER 39K 5% 1W
R381	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R382	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R383	RD14BB2C751J	RES. CARBON 750 5% 1/6W
R384	RD14BB2C751J	RES. CARBON 750 5% 1/6W
R385	RN14BK2C6801F	RES. METAL FILM 6.8K 1% 1/6W
R386	RN14BK2C1303F	RES. METAL FILM 130K 1% 1/6W
R387	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R388	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R389	NO USE	
R390	RD14BB2C913J	RES. CARBON 91K 5% 1/6W
R394	R92-1559-05	RES. SPECIAL POWER 47K 5% 1W
R395	R92-1559-05	RES. SPECIAL POWER 47K 5% 1W
R396	RD14BB2C431J	RES. CARBON 430 5% 1/6W
R397	RD14BB2C162J	RES. CARBON 1.6K 5% 1/6W
R398	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R399	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R400	NO USE	
R401	R92-1557-05	RES. SPECIAL POWER 6.8K 5% 2W
R402	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R403	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R404	R92-1556-05	RES. SPECIAL POWER 1K 5% 2W
R405	R92-1556-05	RES. SPECIAL POWER 1K 5% 2W
R406	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R407	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R408	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R409	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R410	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R411	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R412	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R413	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R414	R92-1554-05	RES. SPECIAL POWER 15 5% 2W
R415	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R416	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R417	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
TC101	C05-0470-05	CAP. TRIMMER 20P
TC102	C05-0470-05	CAP. TRIMMER 20P
TC303	C05-0490-05	CAP. TRIMMER 20P
TH301	112-103-2FM	THERMISTOR
U1	TC4053BP	IC,TRIPLE 2-CH MPX/DE-MPX
U2	NJM072BD	IC,JFET INPUT OP AMP
U3	MC10H102L	IC,GATE FUNCTION
U4	KMS01	IC,LINEAR
U101	MC10H131L	IC,DUAL D-FILP FLOP
U102	KMD05	IC,LINEAR
U103	SN74ALS74AN	IC,DUAL D-F.F. (WITH PR&CLR)
U104	KMS01	IC,LINEAR
U105	KMD05	IC,LINEAR
U106	SN74ALS02N	IC,QUAD 2 INPUT NOR
U107	KMS01	IC,LINEAR
U108	SN74ALS74AN	IC,DUAL D-F.F. (WITH PR&CLR)
U109	TC74HC4053AP	IC,TRIPLE 2-CH ANALOG MPX
U201	NJM4558D	IC,DUAL OP-AMP
U301	TC74HC4053AP	IC,TRIPLE 2-CH ANALOG MPX
U302	KMG01	IC,LINEAR

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
U401	KMA02	IC,LINEAR
VR1	R12-0680-05	RES. SEMI FIXED 47K
VR2	R12-0680-05	RES. SEMI FIXED 47K
VR102	R12-0694-05	RES. SEMI FIXED 4.7KB
VR103	R12-0680-05	RES. SEMI FIXED 47K
VR104	R12-1860-05	RES. SEMI FIXED 1KB
VR201	R12-5545-05	RES. SEMI FIXED 2.2MB
VR202	R12-6507-05	RES. SEMI FIXED 470K
VR301	R12-0680-05	RES. SEMI FIXED 47K
VR302	R12-0882-05	RES. SEMI FIXED 100 B
VR303	R12-0678-05	RES. SEMI FIXED 10KB
VR304	R12-0694-05	RES. SEMI FIXED 4.7KB
VR305	R12-6501-05	RES. SEMI FIXED 470KB
VR306	R12-0680-05	RES. SEMI FIXED 47K
VR307	R12-0680-05	RES. SEMI FIXED 47K
VR308	R12-0890-05	RES. SEMI FIXED 470 B
VR309	R12-0883-05	RES. SEMI FIXED 220 B
W201	W02-2256-05	HIGH VOLTAGE BLOCK

CS-5275 HORIZONTAL UNIT

X74-1580-03

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E23-0149-05	GND TERMINAL			
	E23-0557-14	EARTH LUG,THERMAL FUSE			
	F01-0867-05	HEAT SINK,HIGH VOLTAGE			
	F01-2316-05	HEAT SINK,POWER			
	J73-0284-22	PCB (UNMOUNTED)			
	N09-0623-04	SCREW,SEMS PAN HD M3X8			
C1	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C2	NO USE				
C3	C91-2595-05	CAP. CERAMIC	68P	5%	50V
C4	CF92FV1H103J	CAP. POLYESTER	0.01	5%	50V
C5	C91-2596-05	CAP. CERAMIC	82P	5%	50V
C6	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C7	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
C8	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C9	NO USE				
C10	CK45FB1H222K	CAP. CERAMIC	2200P	10%	50V
C11	C91-0757-05	CAP. CERAMIC	1000P	10%	50V
C12	C91-2538-05	CAP. MYLAR	0.1		63V
C13	C91-2593-05	CAP. CERAMIC	47P	5%	50V
C14	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C15	NO USE				
C16	CE04LW1E100M	CAP. ELECTRO	10	20%	25V
C17	CE04LW1H010M	CAP. ELECTRO	1	20%	50V
C18	CE04LW1H010M	CAP. ELECTRO	1	20%	50V
C19	CF92FV1H682J	CAP. POLYESTER	6800P	5%	50V
C20	CF92FV1H222J	CAP. POLYESTER	2200P	5%	50V
C21	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C22	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C23	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C24	NO USE				
C25	CE04LW1E100M	CAP. ELECTRO	10	20%	25V
C26	CF92FV1H684J	CAP. POLYESTER	0.68	5%	50V
C27	CF92FV1H684J	CAP. POLYESTER	0.68	5%	50V
C28	CE04HW1E220M	CAP. ELECTRO	22	20%	25V
C29	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C30	C91-2538-05	CAP. MYLAR	0.1		63V
C31	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C32	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C33	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C34	CE04LW1C331M	CAP. ELECTRO	330	20%	16V
C37	CC45FSL1H221J	CAP. CERAMIC	220P	5%	50V
C38	C91-0745-05	CAP. CERAMIC	100P	10%	50V
C39	C91-0745-05	CAP. CERAMIC	100P	10%	50V
C101	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C102	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C103	CF92FV1H332J	CAP. POLYESTER	3300P	5%	50V
C104	C91-2582-05	CAP. POLYESTER	0.47	5%	100V
C105	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C106	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V
C107	CE04HW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C108	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C109	NO USE				
C110	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C111	CF92FV1H104J	CAP. POLYESTER	0.1	5%	50V
C112	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C113	CC45FCH1H330J	CAP. CERAMIC	33P	5%	50V
C114	CE04LW1A220M	CAP. ELECTRO	22	20%	10V
C115	C91-2604-05	CAP. CERAMIC	390P	5%	50V
C116	C91-2598-05	CAP. CERAMIC	120P	5%	50V
C117	CC45FCH1H680J	CAP. CERAMIC	68P	5%	50V
C118	CC45FCH1H680J	CAP. CERAMIC	68P	5%	50V
C119	NO USE				
C120	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C121	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C122	CC45FCH1H390J	CAP. CERAMIC	39P	5%	50V
C123	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C124	C91-2582-05	CAP. POLYESTER	0.47	5%	100V
C125	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C126	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C127	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C128	C91-2538-05	CAP. MYLAR	0.1		63V
C129	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C132	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C135	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C136	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C137	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C138	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C139	CC45FSL1H331J	CAP. CERAMIC	330P	5%	50V
C140	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C141	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C142	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C143	C91-0737-05	CAP. CERAMIC	47P	5%	50V
C144	C91-0737-05	CAP. CERAMIC	47P	5%	50V
C145	CE04LW1C100M	CAP. ELECTRO	10	20%	16V
C146	CC45FSL1H030C	CAP. CERAMIC	3P	0.25P	50V
C201	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C202	NO USE				
C203	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C204	NO USE				
C205	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C206	NO USE				
C207	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C208	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C209	CC45FCH2H020C	CAP. CERAMIC	2P	0.25P	500V
C210	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C211	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C212	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C213	CK45FB2H102K	CAP. CERAMIC	1000P	10%	500V
C214	CK45FB2H102K	CAP. CERAMIC	1000P	10%	500V
C215	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C216	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C217	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C218	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C219	NO USE				
C220	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C221	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C222	CE04LW1E221M	CAP. ELECTRO	220	20%	25V
C223	CE04LW1H101M	CAP. ELECTRO	100	20%	50V
C224	CK45FB1H472K	CAP. CERAMIC	4700P	10%	50V
C227	CC45FCH2H101J	CAP. CERAMIC	100P	5%	500V
C228	CK45FB1H222K	CAP. CERAMIC	2200P	10%	50V
C229	C91-1317-05	CAP. CERAMIC	0.01	80/-20%	2K
C230	CK45E3D102P	CAP. CERAMIC	1000P		2KV
C231	C91-2581-05	CAP. CERAMIC	0.01	5%	2KV
C232	CE04W2E010M	CAP. ELECTRO	1	20%	250V
C233	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C234	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C301	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C302	CC45FSL1H331J	CAP. CERAMIC	330P	5%	50V
C303	C91-0713-05	CAP. CERAMIC	2.2	10%	50V
C306	C91-1361-05	CAP. MYLAR	0.01	10%	100V
C307	C91-2585-05	CAP. MYLAR	0.01	10%	250V
C308	C91-2587-05	CAP. MYLAR	0.1	10%	250V
C309	C91-1361-05	CAP. MYLAR	0.01	10%	100V
C310	C91-2587-05	CAP. MYLAR	0.1	10%	250V
C311	C91-2585-05	CAP. MYLAR	0.01	10%	250V
C314	CK45FB2H152K	CAP. CERAMIC	1500P	10%	500V
C315	NO USE				
C316	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C317	NO USE				
C318	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C319	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C320	NO USE				
C321	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C322	CE04LW1A221M	CAP. ELECTRO	220	20%	10V
C323	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C324	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C325	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C401	CE04W2E470M	CAP. ELECTRO	47	20%	250V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
C402	CE04W2E100M	CAP. ELECTRO	10	20%	250V
C403	CE04LW1E220M	CAP. ELECTRO	22	20%	25V
C404	CE04EW2A471M	CAP. ELECTRO	470	20%	100V
C405	CE04LW2A220M	CAP. ELECTRO	22	20%	100V
C406	CE04EW1E472M	CAP. ELECTRO	4700	20%	25V
C407	CE04LW1C331M	CAP. ELECTRO	330	20%	16V
C408	CE04EW1E472M	CAP. ELECTRO	4700	20%	25V
C409	CE04EW1C332M	CAP. ELECTRO	3300	20%	16V
C410	CE04LW0J471M	CAP. ELECTRO	470	20%	6.3V
C411	CE04LW1C331M	CAP. ELECTRO	330	20%	16V
C412	CE04LW0J331M	CAP. ELECTRO	330	20%	6.3V
C413	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C414	CE04LW1C101M	CAP. ELECTRO	100	20%	16V
C415	CE04EW1E102M	CAP. ELECTRO	1000	20%	25V
C416	CE04EW1E102M	CAP. ELECTRO	1000	20%	25V
C417	C91-0761-05	CAP. CERAMIC	2200P	20%	50V
C418	C91-0757-05	CAP. CERAMIC	1000P	10%	50V
C801	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C901	CF92V1H103J	CAP. POLYESTER	0.01	5%	50V
D1	MA700	DIODE			
D2	MA700	DIODE			
D3	MA700	DIODE			
D4	MA700	DIODE			
D5	MA700	DIODE			
D6	1SS132	DIODE			
D7	1SS132	DIODE			
D8	1SS132	DIODE			
D9	1SS132	DIODE			
D10	1SS132	DIODE			
D11	1SS132	DIODE			
D12	MA700	DIODE			
D13	1SS132	DIODE			
D14	1SS132	DIODE			
D15	1SS132	DIODE			
D16	1SS132	DIODE			
D17	1SS132	DIODE			
D18	1SS132	DIODE			
D101	1SS132	DIODE			
D102	1SS132	DIODE			
D103	1SS132	DIODE			
D104	1SS132	DIODE			
D105	1SS132	DIODE			
D106	1SS132	DIODE			
D107	1SS132	DIODE			
D108	1SS132	DIODE			
D109	MA700	DIODE			
D110	1SS132	DIODE			
D111	NO USE				
D112	1SS132	DIODE			
D113	1SS132	DIODE			
D114	MA700	DIODE			
D115	1SS132	DIODE			
D116	NO USE				
D117	1SS132	DIODE			
D118	1SS132	DIODE			
D119	1SS132	DIODE			
D120	1SS132	DIODE			
D121	1SS132	DIODE			
D122	1SS132	DIODE			
D123	1SS132	DIODE			
D124	1SS132	DIODE			
D125	1SS132	DIODE			
D126	1SS132	DIODE			
D127	1SS132	DIODE			
D128	1SS132	DIODE			
D129	1SS132	DIODE			
D130	MA700	DIODE			
D131	NO USE				
D132	MA700	DIODE			
D133	MA700	DIODE			
D201	1SS132	DIODE			
D202	1SS132	DIODE			
D203	1SS83	DIODE			
D204	1SS83	DIODE			
D205	1SS83	DIODE			
D206	1SS83	DIODE			
D207	1SS83	DIODE			
D208	1SS83	DIODE			
D209	1SS83	DIODE			
D210	1SS83	DIODE			
D211	1SS132	DIODE			
D212	1SS132	DIODE			
D213	1SS132	DIODE			
D301	MA700	DIODE			
D302	1SS132	DIODE			

REF.NO	PARTS NO	NAME & DESCRIPTION		
D303	MTZ3.0JA	DIODE,ZENER		
D304	1SS132	DIODE		
D305	1SS132	DIODE		
D306	MA700	DIODE		
D307	MA700	DIODE		
D308	TLR112	LED,RED		
D309	TLR112	LED,RED		
D312	MTZ5.1JB	DIODE,ZENER		
D313	1SS132	DIODE		
D314	NO USE			
D315	1SS132	DIODE		
D316	MTZ3.0JA	DIODE,ZENER		
D401	S1VB60	DIODE,STACK		
D402	S1VB60	DIODE,STACK		
D403	S4VB20F	DIODE,STACK		
D404	S1VB60	DIODE,STACK		
D405	1SS132	DIODE		
D406	1SS132	DIODE		
D407	MTZ13JC	DIODE,ZENER		
D408	MTZ13JC	DIODE,ZENER		
D409	MTZ7.5JA	DIODE,ZENER		
D801	MA700	DIODE		
F201	F53-0107-05	THERMAL FUSE	400MA/125V	
JW1	E38-1005-05	WIRE ASS'Y;3P		
JW2	E38-1006-05	WIRE ASS'Y;6P		
JW9	E38-0988-15	WIRE ASS'Y;H TO V		
JW14	E38-0989-05	WIRE ASS'Y;H TO FINAL		
JW18	E38-0990-05	WIRE ASS'Y;H TO CRT		
JW19	E38-0991-05	WIRE ASS'Y;H TO BNC		
K301	S76-0627-05	RELAY		
L101	L79-0553-05	NOISE FILTER		
L201	L40-1545-06	FERRI INDUCTOR	150MH	5%
L202	L40-1011-04	FERRI INDUCTOR	100UH	10%
L203	L40-1011-04	FERRI INDUCTOR	100UH	10%
L204	L40-3925-05	FERRI INDUCTOR	3.9MH	5%
L301	L40-1001-11	FERRI INDUCTOR	10UH	10%
NL201	NE-38B	NEON LAMP		
NL202	NE-38B	NEON LAMP		
NL203	NE-38B	NEON LAMP		
NL204	NE-38B	NEON LAMP		
P6	E40-7515-05	PIN CONNECTOR	3P	
P7	E40-7519-05	PIN CONNECTOR	4P	
P8	E40-7040-05	PIN CONNECTOR	13P	
P9	NO USE			
P10	E40-5066-05	PIN CONNECTOR	9P	
P15	E40-5067-05	PIN CONNECTOR	10P	
P16	E40-5069-05	PIN CONNECTOR	12P	
P17	E40-3306-05	PIN CONNECTOR	9P	
P20	E40-3299-05	PIN CONNECTOR	2P	
Q3	2SC1740S(R,S)	TR. SI, NPN		
Q4	2SC1923(O)	TR. SI, NPN		
Q5	2SC1923(O)	TR. SI, NPN		
Q6	2SC3779(D)	TR. SI, NPN		
Q7	2SC3779(D)	TR. SI, NPN		
Q8	NO USE			
Q9	2SA1459(K)	TR. SI, PNP		
Q10	2SC1740S(R,S)	TR. SI, NPN		
Q11	2SC1740S(R,S)	TR. SI, NPN		
Q12	2SA1005(K)	TR. SI, PNP		
Q13	2SC1740S(R,S)	TR. SI, NPN		
Q14	2SC1740S(R,S)	TR. SI, NPN		
Q15	2SA1005(K)	TR. SI, PNP		
Q16	2SA1005(K)	TR. SI, PNP		
Q17	2SA933S(R,S)	TR. SI, PNP		
Q18	2SA933S(R,S)	TR. SI, PNP		
Q19	2SC1740S(R,S)	TR. SI, NPN		
Q20	2SA933S(R,S)	TR. SI, PNP		
Q21	2SC1907	TR. SI, NPN		
Q28	2SA1459(K)	TR. SI, PNP		
Q101	2SK170(V)	FET, N-CHANNEL		
Q102	2SC1923(O)	TR. SI, NPN		
Q103	2SA933S(R,S)	TR. SI, PNP		

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
Q104	2SC1740S(R,S)	TR. SI, NPN			
Q105	2SC1740S(R,S)	TR. SI, NPN			
Q106	2SC1740S(R,S)	TR. SI, NPN			
Q107	2SK170(V)	FET, N-CHANNEL			
Q108	2SC1923(O)	TR. SI, NPN			
Q109	2SC3066(G)	TR. SI, NPN			
Q110	2SA1459(K)	TR. SI, PNP			
Q111	2SA933S(R,S)	TR. SI, PNP			
Q112	2SA933S(R,S)	TR. SI, PNP			
Q113	2SA1005(K)	TR. SI, PNP			
Q114	2SA1005(K)	TR. SI, PNP			
Q115	2SA1005(K)	TR. SI, PNP			
Q116	2SA1005(K)	TR. SI, PNP			
Q117	2SC1923(O)	TR. SI, NPN			
Q118	2SC1923(O)	TR. SI, NPN			
Q119	2SA933S(R,S)	TR. SI, PNP			
Q120	2SA1459(K)	TR. SI, PNP			
Q121	2SC1923(O)	TR. SI, NPN			
Q122	2SC1740S(R,S)	TR. SI, NPN			
Q123	2SC1740S(R,S)	TR. SI, NPN			
Q124	2SC1740S(R,S)	TR. SI, NPN			
Q125	2SC1740S(R,S)	TR. SI, NPN			
Q126	2SC1740S(R,S)	TR. SI, NPN			
Q127	2SA1005(K)	TR. SI, PNP			
Q151	2SA1459(K)	TR. SI, PNP			
Q152	2SA1459(K)	TR. SI, PNP			
Q158	2SA1459(K)	TR. SI, PNP			
Q201	2SA933S(R,S)	TR. SI, PNP			
Q202	NO USE				
Q203	2SC1923(O)	TR. SI, NPN			
Q204	2SC1740S(R,S)	TR. SI, NPN			
Q205	2SA933S(R,S)	TR. SI, PNP			
Q206	2SC2910(S)	TR. SI, NPN			
Q207	2SA1208(S)	TR. SI, PNP			
Q208	2SC2910(S)	TR. SI, NPN			
Q209	2SA1208(S)	TR. SI, PNP			
Q210	2SC2551(O)	TR. SI, NPN			
Q211	2SC2551(O)	TR. SI, NPN			
Q212	2SA933S(R,S)	TR. SI, PNP			
Q213	2SD613(E)	TR. SI, NPN			
Q301	2SC1740S(R,S)	TR. SI, NPN			
Q302	2SC1740S(R,S)	TR. SI, NPN			
Q303	2SC1740S(R,S)	TR. SI, NPN			
Q304	2SC1740S(R,S)	TR. SI, NPN			
Q305	2SA933S(R,S)	TR. SI, PNP			
Q306	2SA1005(K)	TR. SI, PNP			
Q307	2SA1005(K)	TR. SI, PNP			
Q313	2SC1740S(R,S)	TR. SI, NPN			
Q314	2SC1907	TR. SI, NPN			
Q315	2SC1907	TR. SI, NPN			
Q316	2SA1459(K)	TR. SI, PNP			
Q317	2SA1459(K)	TR. SI, PNP			
Q318	2SC1907	TR. SI, NPN			
Q319	2SC1907	TR. SI, NPN			
Q320	2SC4732(E)	TR. SI, NPN			
Q321	2SC4732(E)	TR. SI, NPN			
Q322	2SA1828(E)	TR. SI, PNP			
Q323	2SA1828(E)	TR. SI, PNP			
Q324	2SA933S(R,S)	TR. SI, PNP			
Q401	2SA1499(P)	TR. SI, PNP			
Q402	2SC2551(O)	TR. SI, NPN			
Q403	2SA1304	TR. SI, PNP			
Q404	2SC2551(O)	TR. SI, NPN			
Q405	2SB1015(Y)	TR. SI, PNP			
Q406	2SD1406(Y)	TR. SI, NPN			
Q407	2SB1015(Y)	TR. SI, PNP			
R1	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R2	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R3	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R4	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R5	RD14BB2C152J	RES. CARBON	1.5K	5%	1/5W
R6	RD14BB2C822J	RES. CARBON	8.2K	5%	1/6W
R7	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R8	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R9	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R10	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R11	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R12	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R13	NO USE				
R14	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R15	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R16	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R17	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R18	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R19	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R20	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R21	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R22	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R23	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R24	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R25	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R26	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R27	RD14BB2C750J	RES. CARBON	75	5%	1/6W
R28	RD14BB2C750J	RES. CARBON	75	5%	1/6W
R29	RD14BB2C680J	RES. CARBON	68	5%	1/6W
R30	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R31	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R32	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R33	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R34	NO USE				
R35	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R36	NO USE				
R37	RD14BB2C391J	RES. CARBON	390	5%	1/6W
R38	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R39	R90-0660-05	RES. NETWORK	4X1K		
R40	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R41	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R42	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R43	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R44	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R45	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R46	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R47	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R48	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R49	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R50	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R51	RD14BB2C123J	RES. CARBON	12K	5%	1/6W
R52	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R53	RD14BB2C113J	RES. CARBON	11K	5%	1/6W
R54	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R55	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R56	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R57	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R58	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R59	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R60	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R61	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R62	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R63	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R64	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R65	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R66	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R67	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R68	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R69	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R70	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R71	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R72	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R73	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R74	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R75	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R76	NO USE				
R77	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R78	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R79	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R80	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R81	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R82	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R83	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R84	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R85	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R86	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R87	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R88	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R89	NO USE				
R90	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R91	RD14BB2C203J	RES. CARBON	20K	5%	1/6W
R101	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R102	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R103	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R104	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R105	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R106	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R107	RD14BB2C912J	RES. CARBON	9.1K	5%	1/6W
R108	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R109	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R110	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R111	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R112	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R113	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R114	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R115	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R116	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R117	RD14BB2C473J	RES. CARBON	47K	5%	1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R118	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W
R119	RD14BB2C243J	RES. CARBON	24K	5%	1/6W
R120	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R121	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R122	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R123	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R124	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R125	RD14BB2C330J	RES. CARBON	33	5%	1/6W
R126	RD14BB2C120J	RES. CARBON	12	5%	1/6W
R127	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R128	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R129	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R130	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R131	RD14BB2C912J	RES. CARBON	9.1K	5%	1/6W
R132	RD14BB2C163J	RES. CARBON	16K	5%	1/6W
R133	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R134	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R135	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R136	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R137	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R138	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R139	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R140	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R141	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R142	NO USE				
R143	RD14BB2C302J	RES. CARBON	3K	5%	1/6W
R144	RD14BB2C302J	RES. CARBON	3K	5%	1/6W
R145	RD14BB2C131J	RES. CARBON	130	5%	1/6W
R146	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R147	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R148	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R149	RD14BB2C183J	RES. CARBON	18K	5%	1/6W
R150	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R151	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R152	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R153	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R154	RD14BB2C684J	RES. CARBON	680K	5%	1/6W
R155	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R156	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R157	NO USE				
R158	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R159	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R160	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R161	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R162	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R163	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R164	RD14BB2C111J	RES. CARBON	110	5%	1/6W
R165	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R166	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R167	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R168	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R169	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R170	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R171	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R172	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R173	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R174	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R175	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R176	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R177	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R178	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R179	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W
R180	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R181	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R182	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R183	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R184	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R185	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R186	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R187	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R188	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R189	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R190	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R191	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R192	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R193	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R194	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R195	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R196	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R197	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R198	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R199	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R202	RD14BB2C113J	RES. CARBON	11K	5%	1/6W
R206	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W
R207	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R210	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R214	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R215	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R216	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R217	NO USE				
R218	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R219	RD14BB2C134J	RES. CARBON	130K	5%	1/6W
R220	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R221	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R222	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R223	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R224	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W
R225	RD14BB2C134J	RES. CARBON	130K	5%	1/6W
R226	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R227	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R228	RD14BB2C753J	RES. CARBON	75K	5%	1/6W
R229	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R230	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R231	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W
R232	RD14BB2C134J	RES. CARBON	130K	5%	1/6W
R233	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R234	RD14BB2C474J	RES. CARBON	470K	5%	1/6W
R235	RD14BB2C474J	RES. CARBON	470K	5%	1/6W
R236	R92-1563-05	RES. METALGLACE	10M	5%	1/4W
R237	R92-1563-05	RES. METALGLACE	10M	5%	1/4W
R238	R92-1562-05	RES. METALGLACE	8.2M	5%	1/4W
R239	R92-1561-05	RES. METALGLACE	3.9M	5%	1/4W
R240	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R241	RD14BB2C474J	RES. CARBON	470K	5%	1/6W
R242	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R243	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R244	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R245	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R246	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R247	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R248	RN14BK2C1203F	RES. METAL FILM	120K	1%	1/6W
R249	R92-1564-05	RES. METALGLACE	15M	1%	1/2W
R250	RD14BB2C124J	RES. CARBON	120K	5%	1/6W
R251	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R252	RD14BB2C392J	RES. CARBON	3.9K	5%	1/6W
R253	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R254	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R255	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R256	NO USE				
R257	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R258	RD14BB2C302J	RES. CARBON	3K	5%	1/6W
R259	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R260	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R261	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R262	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R263	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W
R264	RD14BB2C303J	RES. CARBON	30K	5%	1/6W
R265	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W
R266	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R267	RD14BB2C224J	RES. CARBON	220K	5%	1/6W
R268	RD14BB2C204J	RES. CARBON	200K	5%	1/6W
R269	R92-1573-05	RES. LINEAR PCT	2.7K	5%	1/6W
R300	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R301	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R302	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R303	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R304	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R305	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R306	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R307	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R308	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R309	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W
R310	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W
R311	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R312	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R313	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R314	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W
R315	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R316	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R317	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R318	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R319	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R320	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R321	RD14BB2C183J	RES. CARBON	18K	5%	1/6W
R322	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R323	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R324	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W
R325	RD14BB2C912J	RES. CARBON	9.1K	5%	1/6W
R326	RD14BB2C301J	RES. CARBON	300	5%	1/6W
R327	RD14BB2C391J	RES. CARBON	390	5%	1/6W
R328	RD14BB2C391J	RES. CARBON	390	5%	1/6W
R329	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R330	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R331	RD14BB2C271J	RES. CARBON	270	5%	1/6W
R332	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R333	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W
R334	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
R335	RD14BB2C243J	RES. CARBON 24K 5% 1/6W
R336	RD14BB2C243J	RES. CARBON 24K 5% 1/6W
R349	R92-1552-05	RES. LINEAR PCT 180
R355	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R362	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R363	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R364	RN14BK2C3901F	RES. METAL FILM 3.9K 1% 1/6W
R365	RN14BK2C6201F	RES. METAL FILM 6.2K 1% 1/6W
R366	R92-1560-05	RES. LINEAR PCT 2K
R367	RD14BB2C393J	RES. CARBON 39K 5% 1/6W
R368	RD14BB2C622J	RES. CARBON 6.2K 5% 1/6W
R369	RD14BB2C204J	RES. CARBON 200K 5% 1/6W
R370	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R371	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R372	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R373	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R374	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R375	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R376	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R377	R92-1558-05	RES. SPECIAL POWER 39K 5% 1W
R378	R92-1558-05	RES. SPECIAL POWER 39K 5% 1W
R381	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R382	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R383	RD14BB2C751J	RES. CARBON 750 5% 1/6W
R384	RD14BB2C751J	RES. CARBON 750 5% 1/6W
R385	RN14BK2C6801F	RES. METAL FILM 6.8K 1% 1/6W
R386	RN14BK2C1303F	RES. METAL FILM 130K 1% 1/6W
R387	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R388	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R389	NO USE	
R390	RD14BB2C913J	RES. CARBON 91K 5% 1/6W
R394	R92-1559-05	RES. SPECIAL POWER 47K 5% 1W
R395	R92-1559-05	RES. SPECIAL POWER 47K 5% 1W
R396	RD14BB2C431J	RES. CARBON 430 5% 1/6W
R397	NO USE	
R398	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R399	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R400	NO USE	
R401	R92-1557-05	RES. SPECIAL POWER 6.8K 5% 2W
R402	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R403	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R404	R92-1556-05	RES. SPECIAL POWER 1K 5% 2W
R405	R92-1556-05	RES. SPECIAL POWER 1K 5% 2W
R406	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R407	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R408	NO USE	
R409	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R410	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R411	NO USE	
R412	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R413	R92-1555-05	RES. SPECIAL POWER 56 5% 2W
R414	R92-1554-05	RES. SPECIAL POWER 15 5% 2W
R415	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R416	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R417	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
TC101	C05-0470-05	CAP. TRIMMER 20P
TC102	C05-0470-05	CAP. TRIMMER 20P
TC303	C05-0490-05	CAP. TRIMMER 20P
TH301	112-103-2FM	THERMISTOR
U1	TC4053BP	IC,TRIPLE 2-CH MPX/DE-MPX
U2	NJM072BD	IC,JFET INPUT OP AMP
U3	MC10H102L	IC,GATE FUNCTION
U4	KMS01	IC,LINEAR
U101	MC10H131L	IC,DUAL D-FILP FLOP
U102	KMD05	IC,LINEAR
U103	SN74ALS74AN	IC,DUAL D-F.F. (WITH PR&CLR)
U104	KMS01	IC,LINEAR
U105	KMD05	IC,LINEAR
U106	SN74ALS02N	IC,QUAD 2 INPUT NOR
U107	KMS01	IC,LINEAR
U108	SN74ALS74AN	IC,DUAL D-F.F. (WITH PR&CLR)
U109	TC74HC4053AP	IC,TRIPLE 2-CH ANALOG MPX
U201	NJM4558D	IC,DUAL OP-AMP
U301	TC74HC4053AP	IC,TRIPLE 2-CH ANALOG MPX
U401	KMA02	IC,LINEAR
VR1	R12-0680-05	RES. SEMI FIXED 47K
VR2	R12-0680-05	RES. SEMI FIXED 47K

REF.NO	PARTS NO	NAME & DESCRIPTION
VR102	R12-0694-05	RES. SEMI FIXED 4.7KB
VR103	R12-0680-05	RES. SEMI FIXED 47K
VR104	R12-1860-05	RES. SEMI FIXED 1KB
VR201	R12-5545-05	RES. SEMI FIXED 2.2MB
VR202	R12-6507-05	RES. SEMI FIXED 470K
VR301	R12-0680-05	RES. SEMI FIXED 47K
VR302	R12-0882-05	RES. SEMI FIXED 100 B
VR303	R12-0678-05	RES. SEMI FIXED 10KB
VR304	R12-0694-05	RES. SEMI FIXED 4.7KB
VR305	R12-6501-05	RES. SEMI FIXED 470KB
VR306	NO USE	
VR307	R12-0680-05	RES. SEMI FIXED 47K
VR308	R12-0890-05	RES. SEMI FIXED 470 B
VR309	R12-0883-05	RES. SEMI FIXED 220 B
W201	W02-2256-05	HIGH VOLTAGE BLOCK

CS-5270 R/O UNIT

X77-1870-00

REF.NO	PARTS NO	NAME & DESCRIPTION
	J73-0282-02	PCB (UNMOUNTED)
C1	C91-2538-05	CAP. MYLAR 0.1 63V
C2	C91-2538-05	CAP. MYLAR 0.1 63V
C3	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C4	C91-2538-05	CAP. MYLAR 0.1 63V
C5	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C6	C91-2538-05	CAP. MYLAR 0.1 63V
C7	C91-2538-05	CAP. MYLAR 0.1 63V
C8	C91-2538-05	CAP. MYLAR 0.1 63V
C9	C91-1361-05	CAP. MYLAR 0.01 10% 100V
C10	C91-2538-05	CAP. MYLAR 0.1 63V
C11	C91-2538-05	CAP. MYLAR 0.1 63V
C12	C91-1361-05	CAP. MYLAR 0.01 10% 100V
C13	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C14	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C15	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C16	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C17	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C18	C91-0755-05	CAP. CERAMIC 680P 10% 50V
C19	C91-0755-05	CAP. CERAMIC 680P 10% 50V
C20	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C21	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C22	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C23	CC45FCH1H270J	CAP. CERAMIC 27P 5% 50V
C24	CC45FCH1H270J	CAP. CERAMIC 27P 5% 50V
C25	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C26	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C29	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C30	C91-2538-05	CAP. MYLAR 0.1 63V
C31	C91-2538-05	CAP. MYLAR 0.1 63V
C32	C91-2538-05	CAP. MYLAR 0.1 63V
C33	C90-3226-05	CAP. ELECTRO 22 20% 16V
C34	C91-2538-05	CAP. MYLAR 0.1 63V
C35	C91-2538-05	CAP. MYLAR 0.1 63V
C36	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C39	C91-2538-05	CAP. MYLAR 0.1 63V
C40	C91-2538-05	CAP. MYLAR 0.1 63V
C41	C91-2538-05	CAP. MYLAR 0.1 63V
C42	C91-2538-05	CAP. MYLAR 0.1 63V
C43	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C44	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C45	C91-2538-05	CAP. MYLAR 0.1 63V
C46	C91-2538-05	CAP. MYLAR 0.1 63V
C47	C91-2538-05	CAP. MYLAR 0.1 63V
C48	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C49	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C50	C91-1128-05	CAP. CERAMIC 0.1 80/-20% 50V
C51	C90-3230-05	CAP. ELECTRO 100 20% 16V
C52	C90-3230-05	CAP. ELECTRO 100 20% 16V
C53	C90-3230-05	CAP. ELECTRO 100 20% 16V
C54	C90-3230-05	CAP. ELECTRO 100 20% 16V
C55	C90-3216-05	CAP. ELECTRO 330 20% 6.3V
C56	NO USE	
C57	CC45FCH1H680J	CAP. CERAMIC 68P 5% 50V
C58	CC45FCH1H680J	CAP. CERAMIC 68P 5% 50V
C59	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
C60	C91-0769-05	CAP. CERAMIC 0.01 20% 16V
JW24	E38-0982-05	WIRE ASS'Y;8P
JW25	E38-1000-15	WIRE ASS'Y;1P,EARTH LUG

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
L1	L79-0551-05	NOISE FILTER			
L2	L79-0551-05	NOISE FILTER			
L3	L79-0551-05	NOISE FILTER			
L4	L79-0551-05	NOISE FILTER			
L5	R92-1061-05	JUMPING RES.	ZERO OHM(5MM)		
P23	E40-7404-05	PIN CONNECTOR	26P		
R1	RN14BK2C9100F	RES. METAL FILM	910	1%	1/6W
R4	RN14BK2C1101F	RES. METAL FILM	1.1K	1%	1/6W
R7	RN14BK2C3301F	RES. METAL FILM	3.3K	1%	1/6W
R8	RN14BK2C3301F	RES. METAL FILM	3.3K	1%	1/6W
R9	RN14BK2C3001F	RES. METAL FILM	3K	1%	1/6W
R10	RN14BK2C1301F	RES. METAL FILM	1.3K	1%	1/6W
R11	RN14BK2C2701F	RES. METAL FILM	2.7K	1%	1/6W
R12	RN14BK2C2701F	RES. METAL FILM	2.7K	1%	1/6W
R13	RN14BK2C3301F	RES. METAL FILM	3.3K	1%	1/6W
R14	RN14BK2C1601F	RES. METAL FILM	1.6K	1%	1/6W
R15	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R16	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R17	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R18	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R19	RD14BB2C752J	RES. CARBON	7.5K	5%	1/6W
R20	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R21	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R22	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R23	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R24	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R25	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R26	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R27	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R28	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R29	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R30	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R31	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R32	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R33	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R34	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R35	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R36	RN14BK2C1202D	RES. METAL FILM	12K	0.5%	1/6W
R37	RN14BK2C1202D	RES. METAL FILM	12K	0.5%	1/6W
R38	RN14BK2C3001D	RES. METAL FILM	3K	0.5%	1/6W
R39	RN14BK2C1521D	RES. METAL FILM	1.52K	0.5%	1/6W
R40	RN14BK2C3001F	RES. METAL FILM	3K	1%	1/6W
R41	RN14BK2C1501F	RES. METAL FILM	1.5K	1%	1/6W
R42	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R43	R90-0653-05	RES. NETWORK	8X10K		
R44	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R45	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R46	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R47	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R48	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R49	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R50	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R51	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R52	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R53	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R54	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R55	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R56	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R57	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R58	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R59	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R60	RD14BB2C101J	RES. CARBON	100	5%	1/6W
U1	CTM5280	IC GATE ARRAY			
U2	LC3664ASL-10	IC,CMOS 64K SRAM			
U3	NJM311D	IC,COMPARATOR			
U4	SN74ALS138N	IC,3-8 DECODER/DE-MPX			
U5	SN74ALS32N	IC,QUAD 2 INPUT OR			
U6	SN74AS373N	IC,OCTAL D TRANSPARENT LATCHES			
U7	SN74ALS374AN	IC,OCTAL D-F.F.			
U8	SN74ALS374AN	IC,OCTAL D-F.F.			
U9	DAC0808LCN	IC,8-BIT D/A CONVERTER			
U10	DAC0808LCN	IC,8-BIT D/A CONVERTER			
U11	TC74HC4051AP	IC,8-CH ANALOG MULTIPLEXER			
U12	TC74HC4051AP	IC,8-CH ANALOG MULTIPLEXER			
U13	NJM072BD	IC,JFET INPUT OP AMP			
U14	SN74LS164N	IC,8-BIT PARA-OUT SERI. REGIST			
U15	SN74ALS04BN	IC,HEX INVERTERS			
U16	HA17012PB	IC,12-BIT D/A CONVERTER			
U17	HD14051BP	IC,8-CH ANALOG MPX/DE-MP			
U18	PST518B	IC,RESET			
X1	L78-0131-05	CERALOCK			
X2	L78-0130-05	CERALOCK			

CS-5270 FINAL AMP UNIT

X80-1370-02

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E01-0103-05	CRT SOCKET			
	E23-0149-05	GND TERMINAL			
	F01-2318-04	HEAT SINK			
	F01-2319-05	HEAT SINK			
	J21-4879-04	BRACKET			
	J73-0285-22	PCB (UNMOUNTED)			
	N09-0718-05	SCREW,SEMS PAN HD M3X6			
C1	CK45FB1H152K	CAP. CERAMIC	1500P	10%	50V
C2	NO USE				
C3	C90-3178-05	CAP. METAL FILM	0.047		5.5V
C4	C90-3178-05	CAP. METAL FILM	0.047		5.5V
C5	NO USE				
C6	CC45FSL1H821J	CAP. CERAMIC	820P	5%	50V
C7	CC45FCH1H121J	CAP. CERAMIC	120P	5%	50V
C8	CF92FV1H102J	CAP. POLYESTER	1000P	5%	50V
C9	CF92FV1H102J	CAP. POLYESTER	1000P	5%	50V
C10	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C11	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C12	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C13	CC45FCH1H180J	CAP. CERAMIC	18P	5%	50V
C14	CC45FCH1H151J	CAP. CERAMIC	150P	5%	50V
C15	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C16	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C17	CF92V1H103J	CAP. POLYESTER	0.01	5%	50V
C18	CF92V1H104J	CAP. POLYESTER	0.1	5%	50V
C101	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C102	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C103	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C104	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C105	NO USE				
C106	C91-1357-05	CAP. POLYESTER	0.1	10%	100V
C107	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C108	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C109	NO USE				
C110	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V
C111	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C201	C91-2583-05	CAP. CERAMIC	0.1	20%	250V
C202	C91-2584-05	CAP. CERAMIC	1000P	10%	250V
C203	C91-2584-05	CAP. CERAMIC	1000P	10%	250V
C207	CE04LW1E220M	CAP. ELECTRO	22	20%	25V
C208	NO USE				
C209	CE04LW0J101M	CAP. ELECTRO	100	20%	6.3V
C210	NO USE				
C211	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C801	C91-1229-05	CAP. CERAMIC	3.3P	10%	50V
C802	C91-1229-05	CAP. CERAMIC	3.3P	10%	50V
JW5	E38-0997-05	WIRE ASS'Y;CRT TO FINAL			
JW6	NO USE				
JW7	E38-0998-05	WIRE ASS'Y;CRT TO H			
JW13	E38-0999-05	WIRE ASS'Y;BNC TO V			
L1	L40-2201-17	FERRI INDUCTOR	22UH	10%	
L2	L40-1001-17	FERRI INDUCTOR	10UH	10%	
L61	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
L62	L40-3981-17	FERRI INDUCTOR	0.39UH	10%	
L63	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
L64	L40-3981-17	FERRI INDUCTOR	0.39UH	10%	
L201	L33-0808-05	CHOKE COIL	1000UH		
L202	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
L203	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
P4	E40-7515-05	PIN CONNECTOR	3P		
P5	E40-3300-05	PIN CONNECTOR	3P		
P14	E40-5066-05	PIN CONNECTOR	9P		
P18	E40-7518-05	PIN CONNECTOR	6P		
P19	E40-7515-05	PIN CONNECTOR	3P		
P20	NO USE				
P21	E40-7412-05	PIN CONNECTOR	2P		
P22	E40-7413-05	PIN CONNECTOR	6P		
P105	E40-7515-05	PIN CONNECTOR	3P		
P114	E40-7517-05	PIN CONNECTOR	5P		
P201	E04-0277-05	BNC CONNECTOR			

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
Q1	2SA1161	TR. SI, PNP			
Q2	2SA1161	TR. SI, PNP			
Q3	2SC3779(D)	TR. SI, NPN			
Q4	2SC3779(D)	TR. SI, NPN			
Q5	2SC3779(D)	TR. SI, NPN			
Q6	2SC3779(D)	TR. SI, NPN			
Q7	2SC3779(D)	TR. SI, NPN			
Q8	2SC3779(D)	TR. SI, NPN			
Q9	2SC3779(D)	TR. SI, NPN			
Q10	2SC3779(D)	TR. SI, NPN			
Q11	2SC3779(D)	TR. SI, NPN			
Q12	2SC3779(D)	TR. SI, NPN			
Q13	2SC1252	TR. SI, NPN			
Q14	2SC1252	TR. SI, NPN			
Q201	2SC3779(D)	TR. SI, NPN			
Q202	2SC3779(D)	TR. SI, NPN			
R1	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R2	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R3	RD14BB2E822J	RES. CARBON	8.2K	5%	1/4W
R4	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R5	RD14BB2C131J	RES. CARBON	130	5%	1/6W
R6	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R7	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R8	RD14BB2C911J	RES. CARBON	910	5%	1/6W
R9	RD14BB2C911J	RES. CARBON	910	5%	1/6W
R10	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R11	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R12	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R13	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R14	RD14BB2E273J	RES. CARBON	27K	5%	1/4W
R15	R92-1575-05	RES. LINEAR PCT	100	5%	1/6W
R16	R92-1575-05	RES. LINEAR PCT	100	5%	1/6W
R17	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R18	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R19	RD14BB2C113J	RES. CARBON	11K	5%	1/6W
R20	RD14BB2C561J	RES. CARBON	560	5%	1/6W
R21	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R22	RN14BK2C5600F	RES. METAL FILM	560	1%	1/6W
R23	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R24	RD14BB2C303J	RES. CARBON	30K	5%	1/6W
R25	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R26	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R27	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R28	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R29	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R30	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R34	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R35	RD14BB2C623J	RES. CARBON	62K	5%	1/6W
R36	RD14BB2C203J	RES. CARBON	20K	5%	1/6W
R37	RD14BB2E752J	RES. CARBON	7.5K	5%	1/4W
R38	NO USE				
R39	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R40	NO USE				
R41	RD14BB2C680J	RES. CARBON	68	5%	1/6W
R42	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R43	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R44	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W
R45	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R46	RD14BB2C911J	RES. CARBON	910	5%	1/6W
R47	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R48	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R49	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R50	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R51	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R52	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R53	RD14BB2C1R0J	RES. CARBON	1	5%	1/6W
R54	RD14BB2C1R0J	RES. CARBON	1	5%	1/6W
R55	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R56	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R57	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R58	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R59	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R60	NO USE				
R61	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R62	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R63	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R64	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R65	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R66	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R67	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R68	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R69	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R70	RD14BB2C271J	RES. CARBON	270	5%	1/6W
R71	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R72	RN14BK2C30R0F	RES. METAL FILM	30.0	1%	1/6W
R73	R92-1567-05	RES. SPECIAL POWER	100	5%	1W
R74	R92-1567-05	RES. SPECIAL POWER	100	5%	1W
R75	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R76	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R77	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R78	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R79	RD14BB2E2R2J	RES. CARBON	2.2	5%	1/4W
R80	RD14BB2E2R2J	RES. CARBON	2.2	5%	1/4W
R81	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R82	R92-1565-05	RES. SPECIAL POWER	27	5%	1W
R85	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R86	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R87	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R88	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R89	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R90	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R91	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R92	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R93	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R94	NO USE				
R95	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R96	NO USE				
R97	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R98	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R201	R92-0173-05	RES. FIXED	2.2M	20%	350V
R202	NO USE				
R203	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R204	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R205	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W
R206	NO USE				
R207	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R208	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R209	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R210	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R211	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R212	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R213	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R214	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R215	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R216	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R217	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R218	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R219	RD14BB2C121J	RES. CARBON	120	5%	1/6W
TC1	C05-0469-05	CAP. TRIMMER	10P		
TC62	C05-0472-05	CAP. TRIMMER	50P		
TH1	112-103-2FM	THERMISTOR			
TH2	112-103-2FM	THERMISTOR			
U1	KMG01	IC,LINEAR			
VR1	R12-1857-05	RES. SEMI FIXED	1K		
VR2	R12-0679-05	RES. SEMI FIXED	22KB		
VR3	R12-1860-05	RES. SEMI FIXED	1KB		
VR4	R12-0679-05	RES. SEMI FIXED	22KB		

CS-5275 FINAL AMP UNIT

X80-1370-03

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E01-0103-05	CRT SOCKET			
	E23-0149-05	GND TERMINAL			
	F01-2318-04	HEAT SINK			
	F01-2319-05	HEAT SINK			
	J21-4879-04	BRACKET			
	J73-0285-22	PCB (UNMOUNTED)			
	N09-0718-05	SCREW,SEMS PAN HD M3X6			
C1	CK45FB1H152K	CAP. CERAMIC	1500P	10%	50V
C2	NO USE				
C3	C90-3178-05	CAP. METAL FILM	0.047		5.5V
C4	C90-3178-05	CAP. METAL FILM	0.047		5.5V
C5	NO USE				
C6	CC45FSL1H821J	CAP. CERAMIC	820P	5%	50V
C7	CC45FCH1H121J	CAP. CERAMIC	120P	5%	50V
C8	CF92FV1H102J	CAP. POLYESTER	1000P	5%	50V
C9	CF92FV1H102J	CAP. POLYESTER	1000P	5%	50V
C10	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C11	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C12	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C13	CC45FCH1H180J	CAP. CERAMIC	18P	5%	50V
C14	CC45FCH1H151J	CAP. CERAMIC	150P	5%	50V
C15	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C16	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C17	CF92V1H103J	CAP. POLYESTER	0.01	5%	50V
C18	CF92V1H104J	CAP. POLYESTER	0.1	5%	50V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
C101	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C102	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C103	CE04LW1E101M	CAP. ELECTRO	100	20%	25V
C104	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C105	NO USE				
C106	C91-1357-05	CAP. POLYESTER	0.1	10%	100V
C107	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C108	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C109	NO USE				
C110	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V
C111	C91-0769-05	CAP. CERAMIC	0.01	20%	16V
C207	CE04LW1E220M	CAP. ELECTRO	22	20%	25V
C208	NO USE				
C209	CE04LW0J101M	CAP. ELECTRO	100	20%	6.3V
C210	NO USE				
C211	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C801	C91-1229-05	CAP. CERAMIC	3.3P	10%	50V
C802	C91-1229-05	CAP. CERAMIC	3.3P	10%	50V
D100	MA700	DIODE			
D101	MA700	DIODE			
JW5	E38-0997-05	WIRE ASS'Y;CRT TO FINAL			
JW6	NO USE				
JW7	E38-0998-05	WIRE ASS'Y;CRT TO H			
JW13	E38-0999-05	WIRE ASS'Y;BNC TO V			
L1	L40-2201-17	FERRI INDUCTOR	22UH	10%	
L2	L40-1001-17	FERRI INDUCTOR	10UH	10%	
L61	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
L62	L40-3981-17	FERRI INDUCTOR	0.39UH	10%	
L63	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
L64	L40-3981-17	FERRI INDUCTOR	0.39UH	10%	
L202	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
L203	L40-2281-17	FERRI INDUCTOR	0.22UH	10%	
P4	E40-7515-05	PIN CONNECTOR	3P		
P5	E40-3300-05	PIN CONNECTOR	3P		
P14	E40-5066-05	PIN CONNECTOR	9P		
P18	E40-7518-05	PIN CONNECTOR	6P		
P19	E40-7515-05	PIN CONNECTOR	3P		
P20	NO USE				
P21	E40-7412-05	PIN CONNECTOR	2P		
P22	E40-7413-05	PIN CONNECTOR	6P		
P105	E40-7515-05	PIN CONNECTOR	3P		
P114	E40-7517-05	PIN CONNECTOR	5P		
P201	E04-0277-05	BNC CONNECTOR			
Q1	2SA1161	TR. SI, PNP			
Q2	2SA1161	TR. SI, PNP			
Q3	2SC3779(D)	TR. SI, NPN			
Q4	2SC3779(D)	TR. SI, NPN			
Q5	2SC3779(D)	TR. SI, NPN			
Q6	2SC3779(D)	TR. SI, NPN			
Q7	2SC3779(D)	TR. SI, NPN			
Q8	2SC3779(D)	TR. SI, NPN			
Q9	2SC3779(D)	TR. SI, NPN			
Q10	2SC3779(D)	TR. SI, NPN			
Q11	2SC3779(D)	TR. SI, NPN			
Q12	2SC3779(D)	TR. SI, NPN			
Q13	2SC1252	TR. SI, NPN			
Q14	2SC1252	TR. SI, NPN			
Q100	2SC1740S(R,S)	TR. SI, NPN			
Q201	2SC3779(D)	TR. SI, NPN			
Q202	2SC3779(D)	TR. SI, NPN			
R1	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R2	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R3	RD14BB2E822J	RES. CARBON	8.2K	5%	1/4W
R4	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R5	RD14BB2C131J	RES. CARBON	130	5%	1/6W
R6	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R7	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R8	RD14BB2C911J	RES. CARBON	910	5%	1/6W
R9	RD14BB2C911J	RES. CARBON	910	5%	1/6W
R10	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R11	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R12	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W

X80-1370-03

REF.NO	PARTS NO	NAME & DESCRIPTION			
R13	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R14	RD14BB2E273J	RES. CARBON	27K	5%	1/4W
R15	R92-1575-05	RES. LINEAR PCT	100	5%	1/6W
R16	R92-1575-05	RES. LINEAR PCT	100	5%	1/6W
R17	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R18	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R19	RD14BB2C113J	RES. CARBON	11K	5%	1/6W
R20	RD14BB2C561J	RES. CARBON	560	5%	1/6W
R21	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R22	RN14BK2C5600F	RES. METAL FILM	560	1%	1/6W
R23	RD14BB2C473J	RES. CARBON	47K	5%	1/6W
R24	RD14BB2C303J	RES. CARBON	30K	5%	1/6W
R25	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R26	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R27	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R28	RD14BB2C132J	RES. CARBON	1.3K	5%	1/6W
R29	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R30	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R31	NO USE				
R32	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R33	RD14BB2C622J	RES. CARBON	6.2K	5%	1/6W
R34	RD14BB2C241J	RES. CARBON	240	5%	1/6W
R35	NO USE				
R36	RD14BB2C203J	RES. CARBON	20K	5%	1/6W
R37	NO USE				
R38	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R39	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R40	NO USE				
R41	RD14BB2C680J	RES. CARBON	68	5%	1/6W
R42	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R43	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R44	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W
R45	RD14BB2C362J	RES. CARBON	3.6K	5%	1/6W
R46	RD14BB2C911J	RES. CARBON	910	5%	1/6W
R47	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R48	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R49	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R50	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R51	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R52	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R53	RD14BB2C1R0J	RES. CARBON	1	5%	1/6W
R54	RD14BB2C1R0J	RES. CARBON	1	5%	1/6W
R55	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R56	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R57	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R58	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
R59	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R60	NO USE				
R61	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R62	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R63	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R64	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R65	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R66	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R67	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R68	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R69	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R70	RD14BB2C271J	RES. CARBON	270	5%	1/6W
R71	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R72	RN14BK2C30R0F	RES. METAL FILM	30.0	1%	1/6W
R73	R92-1567-05	RES. SPECIAL POWER	100	5%	1W
R74	R92-1567-05	RES. SPECIAL POWER	100	5%	1W
R75	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R76	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R77	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R78	R92-1566-05	RES. SPECIAL POWER	91	5%	1W
R79	RD14BB2E2R2J	RES. CARBON	2.2	5%	1/4W
R80	RD14BB2E2R2J	RES. CARBON	2.2	5%	1/4W
R81	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R82	R92-1565-05	RES. SPECIAL POWER	27	5%	1W
R85	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R86	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R87	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R88	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R89	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R90	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R91	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R92	R92-1569-05	RES. SPECIAL POWER	360	5%	2W
R93	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R94	NO USE				
R95	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R96	NO USE				
R97	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R98	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R203	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R204	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R205	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W
R206	NO USE				
R207	RD14BB2C201J	RES. CARBON	200	5%	1/6W

PARTS LIST

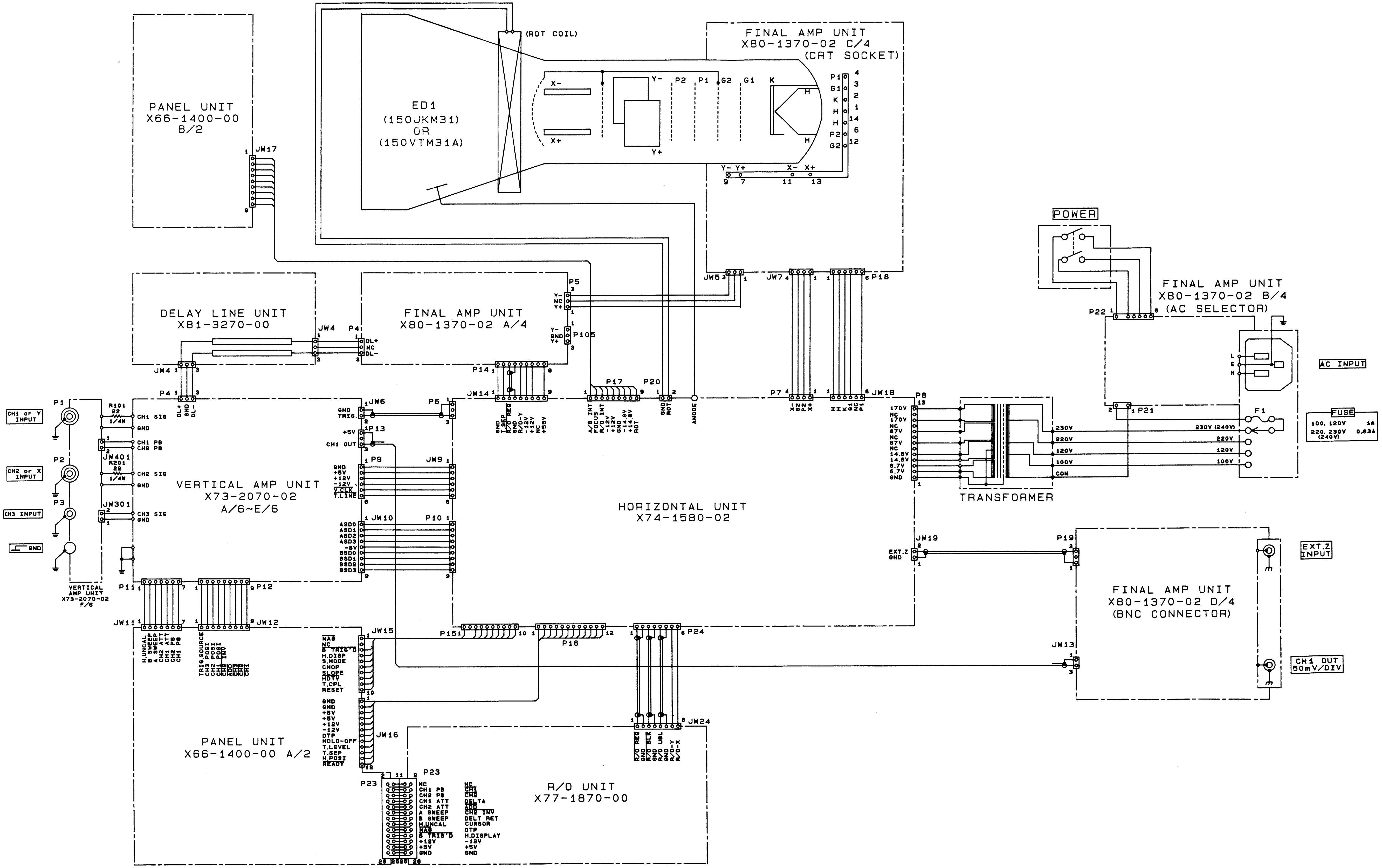
REF.NO	PARTS NO	NAME & DESCRIPTION			
R208	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R209	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R210	RD14BB2C470J	RES. CARBON	47	5%	1/6W
R211	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R212	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R213	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R214	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R215	RD14BB2C100J	RES. CARBON	10	5%	1/6W
R216	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R217	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R218	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R219	RD14BB2C121J	RES. CARBON	120	5%	1/6W
TC1	C05-0469-05	CAP. TRIMMER	10P		
TC62	C05-0472-05	CAP. TRIMMER	50P		
TH1	112-103-2FM	THERMISTOR			
TH2	112-103-2FM	THERMISTOR			
VR1	R12-1857-05	RES. SEMI FIXED	1K		
VR2	NO. USE				
VR3	R12-1860-05	RES. SEMI FIXED	1KB		
VR4	R12-0679-05	RES. SEMI FIXED	22KB		

DELAY LINE UNIT

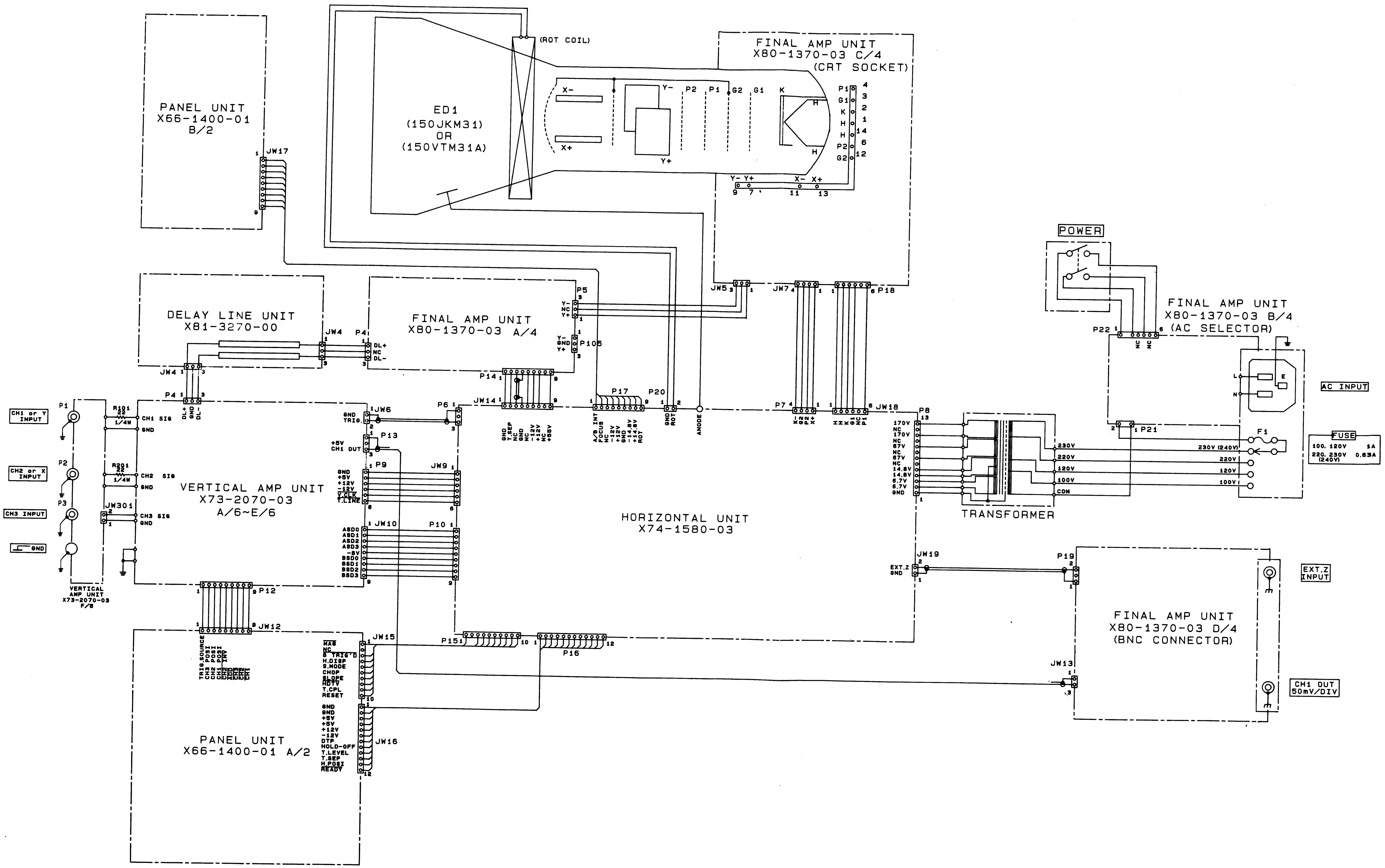
X81-3270-00

REF.NO	PARTS NO	NAME & DESCRIPTION	
	J73-0286-03	PCB (UNMOUNTED)	
	R92-1061-05	JUMPING RES.	ZERO OHM (5MM)
JW4	E38-1001-05	WIRE ASS'Y	

CS-5270 SCHEMATIC DIAGRAM

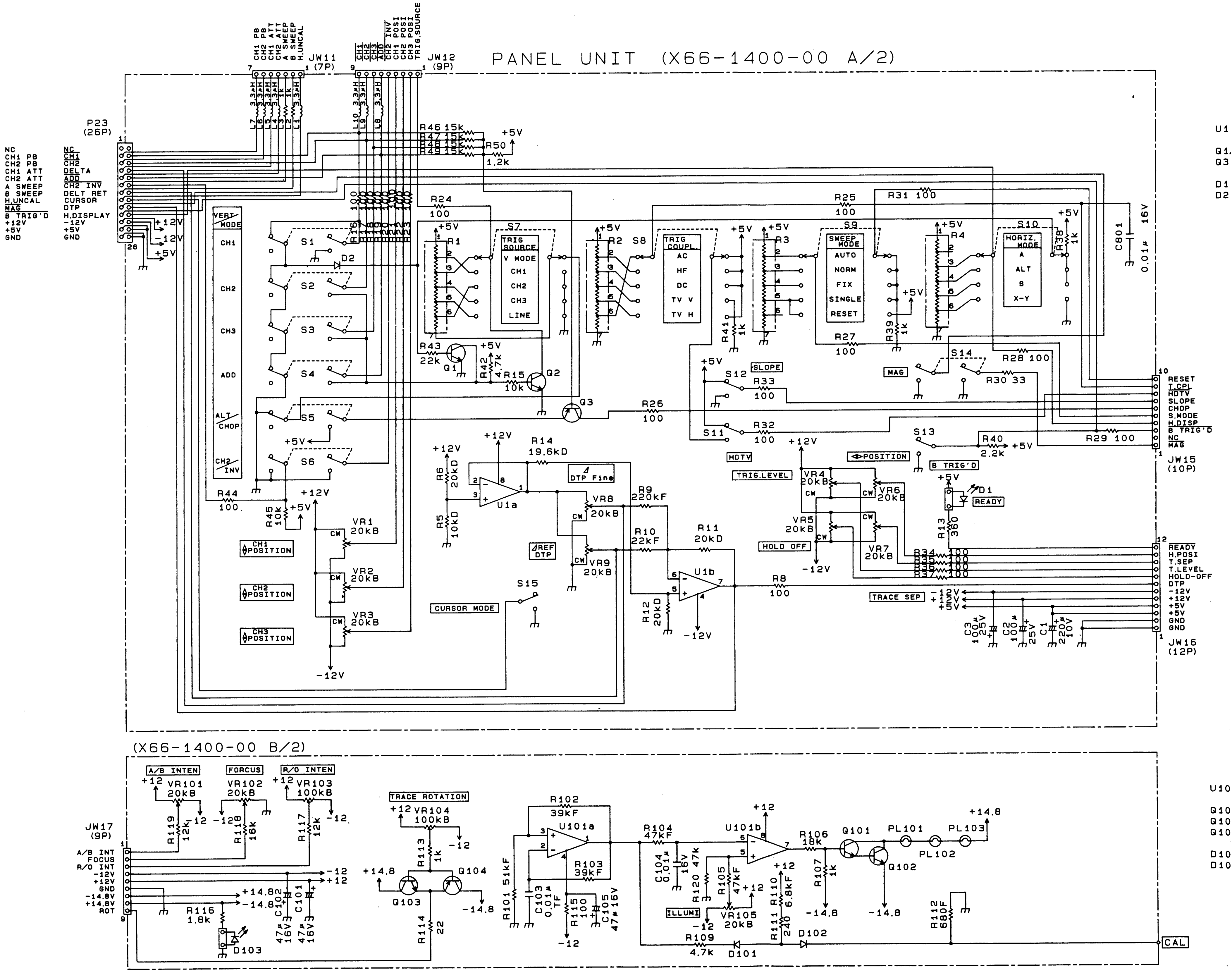

PANEL UNIT X66-1400-00 B/2
JW17
(ROT COIL)
ED1 (150JKM31) OR (150VTM31A)
FINAL AMP UNIT X80-1370-02 C/4 (CRT SOCKET)
X- X+ Y- Y+ P2 P1 G2 G1 K H
P1 G1 K H H P2 G2
Y- Y+ X- X+
POWER
FINAL AMP UNIT X80-1370-02 B/4 (AC SELECTOR)
P22
L E N
AC INPUT
F1
FUSE
100, 120V 1A
220, 230V (240V) 0.63A
230V (240V)
230V 220V 120V 100V COM
P21
TRANSFORMER
DELAY LINE UNIT X81-3270-00
JW4 P4
DL+ NC DL-
FINAL AMP UNIT X80-1370-02 A/4
P5 Y- NC Y+
P105 Y- GND Y+
JW5 JW7 P18
P14 JW14
GND T.SEP R/O REG GND R/O-Y -12V +12V NC +55V
P17 P20
A/B INT FOCUS R/O INT -12V +12V GND -14.8V +14.8V ROT
GND ROT
ANODE
P7 X- G2 P2 X+
JW18 H H K G1 NC P1
P8
170V NC 170V NC 67V NC 67V NC 14.8V 14.8V 6.7V 6.7V GND
P1 CH1 or Y INPUT
P2 CH2 or X INPUT
P3 CH3 INPUT
GND
R101 22 1/4W
R201 22 1/4W
JW401 JW301
CH1 SIG GND CH1 PB CH2 PB CH2 SIG GND CH3 SIG GND
VERTICAL AMP UNIT X73-2070-02 F/6
VERTICAL AMP UNIT X73-2070-02 A/6~E/6
JW6 GND TRIG. P6
P13 +5V CH1 OUT
P9 JW9 GND +5V +12V -12V V.CLK T.LINE
JW10 P10 ASD0 ASD1 ASD2 ASD3 -8V BSD0 BSD1 BSD2 BSD3
HORIZONTAL UNIT X74-1580-02
JW19 EXT.Z GND
P19
FINAL AMP UNIT X80-1370-02 D/4 (BNC CONNECTOR)
EXT.Z INPUT
JW13
CH1 OUT 50mV/DIV
P11 P12 JW11 JW12
H.UNCAL B SWEEP A SWEEP CH2 ATT CH1 ATT CH2 PB CH1 PB
TRIG.SOURCE CH3 POSI CH2 POSI CH1 POSI CH2 INV ADD CH3 CH2 CH1
JW15 MAG NC B TRIG'D H.DISP S.MODE CHOP SLOPE HDTV T.CPL RESET
JW16 GND GND +5V +5V +12V -12V DTP HOLD-OFF T.LEVEL T.SEP H.POSI READY
P15 P16 P24 JW24
R/O REG GND R/O BLK GND R/O UBL GND R/O-Y R/O-X
PANEL UNIT X66-1400-00 A/2
P23
NC CH1 PB CH2 PB CH1 ATT CH2 ATT A SWEEP B SWEEP H.UNCAL MAG B TRIG'D +12V +5V GND
NC CH1 CH2 DELTA ADD CH2 INV DELT RET CURSOR DTP H.DISPLAY -12V +5V GND
R/O UNIT X77-1870-00

CS-5275 SCHEMATIC DIAGRAM


PANEL UNIT
X66-1400-01
B/2
JW17
1
9
(ROT COIL)
ED1
(150JKM31)
OR
(150VTM31A)
X-
X+
Y-
Y+
P2
P1
G2
G1
K
H
FINAL AMP UNIT
X80-1370-03 C/4
(CRT SOCKET)
P1
G1
K
H
H
P2
G2
4
3
2
1
14
6
12
Y- Y+
X- X+
9
7
11
13
POWER
DELAY LINE UNIT
X81-3270-00
JW4
P4
DL+
NC
DL-
FINAL AMP UNIT
X80-1370-03 A/4
P5
Y-
NC
Y+
P105
Y-
GND
Y+
P14
JW14
GND
T.SEP
NC
GND
NC
-12V
+12V
NC
+55V
P17
A/B INT
FOCUS
NC
-12V
+12V
GND
-14.8V
+14.8V
ROT
P20
GND
ROT
ANODE
JW5
JW7
P18
P7
X-
G2
P2
X+
JW18
H
H
K
G1
NC
P1
FINAL AMP UNIT
X80-1370-03 B/4
(AC SELECTOR)
P22
NC
NC
L
N
E
AC INPUT
P21
F1
FUSE
100, 120V 1A
220, 230V (240V) 0.63A
230V (240V)
220V
120V
100V
P8
170V
NC
170V
NC
67V
NC
67V
NC
14.8V
14.8V
6.7V
6.7V
GND
230V
220V
120V
100V
COM
TRANSFORMER
CH1 or Y INPUT
CH2 or X INPUT
CH3 INPUT
GND
P1
P2
P3
R101
22
1/4W
R201
22
1/4W
JW301
CH1 SIG
GND
CH2 SIG
GND
CH3 SIG
GND
DL+
GND
DL-
VERTICAL AMP UNIT
X73-2070-03
F/6
VERTICAL AMP UNIT
X73-2070-03
A/6~E/6
JW6
GND
TRIG.
P6
P13
+5V
CH1 OUT
P9
GND
+5V
+12V
-12V
V.CLK
T.LINE
JW9
JW10
ASD0
ASD1
ASD2
ASD3
-8V
BSD0
BSD1
BSD2
BSD3
P10
HORIZONTAL UNIT
X74-1580-03
P12
JW12
TRIG.SOURCE
CH3 POSI
CH2 POSI
CH1 POSI
CH2 INV
ADD
CH3
CH2
CH1
JW15
MAG
NC
B TRIG'D
H.DISP
S.MODE
CHOP
SLOPE
HDTV
T.CPL
RESET
GND
GND
+5V
+5V
+12V
-12V
DTP
HOLD-OFF
T.LEVEL
T.SEP
H.POSI
READY
JW16
PANEL UNIT
X66-1400-01 A/2
P15
P16
JW19
EXT.Z
GND
P19
FINAL AMP UNIT
X80-1370-03 D/4
(BNC CONNECTOR)
JW13
EXT.Z INPUT
CH1 OUT 50mV/DIV

CS-5270 SCHEMATIC DIAGRAM

PANEL UNIT (X66-1400-00)


PANEL UNIT (X66-1400-00 A/2)
(X66-1400-00 B/2)
JW11 (7P)
JW12 (9P)
P23 (26P)
NC
CH1 PB
CH2 PB
CH1 ATT
CH2 ATT
A SWEEP
B SWEEP
H.UNCAL
MAG
B TRIG'D
+12V
+5V
GND
CH1
CH2
DELTA
ADD
CH2 INV
DELT RET
CURSOR
DTP
H.DISPLAY
-12V
VERT MODE
ALT/CHOP
CH2/INV
TRIG SOURCE
V MODE
LINE
TRIG COUPL
AC
HF
DC
TV V
TV H
SWEEP MODE
AUTO
NORM
FIX
SINGLE
RESET
HORIZ. MODE
A
ALT
B
X-Y
SLOPE
MAG
HDTV
TRIG.LEVEL
HOLD OFF
POSITION
B TRIG'D
READY
CH1 POSITION
CH2 POSITION
CH3 POSITION
CURSOR MODE
Δ DTP Fine
Δ REF DTP
TRACE SEP
JW15 (10P)
RESET
T.CPL
HDTV
SLOPE
CHOP
S.MODE
H.DISP
B TRIG'D
NC
MAG
JW16 (12P)
READY
H.POSI
T.SEP
T.LEVEL
HOLD-OFF
DTP
+5V
GND
U1a
U1b
A/B INTEN
FORCUS
R/O INTEN
TRACE ROTATION
ILLUMI
JW17 (9P)
A/B INT
FOCUS
R/O INT
-12V
+12V
GND
-14.8V
+14.8V
ROT
U101a
U101b
PL101
PL102
PL103
CAL

U1 :NJM4558L

Q1, 2 :2SC1740S (R, S)
Q3 :2SA933S (R, S)

D1 :LN322GP
D2 :1SS132

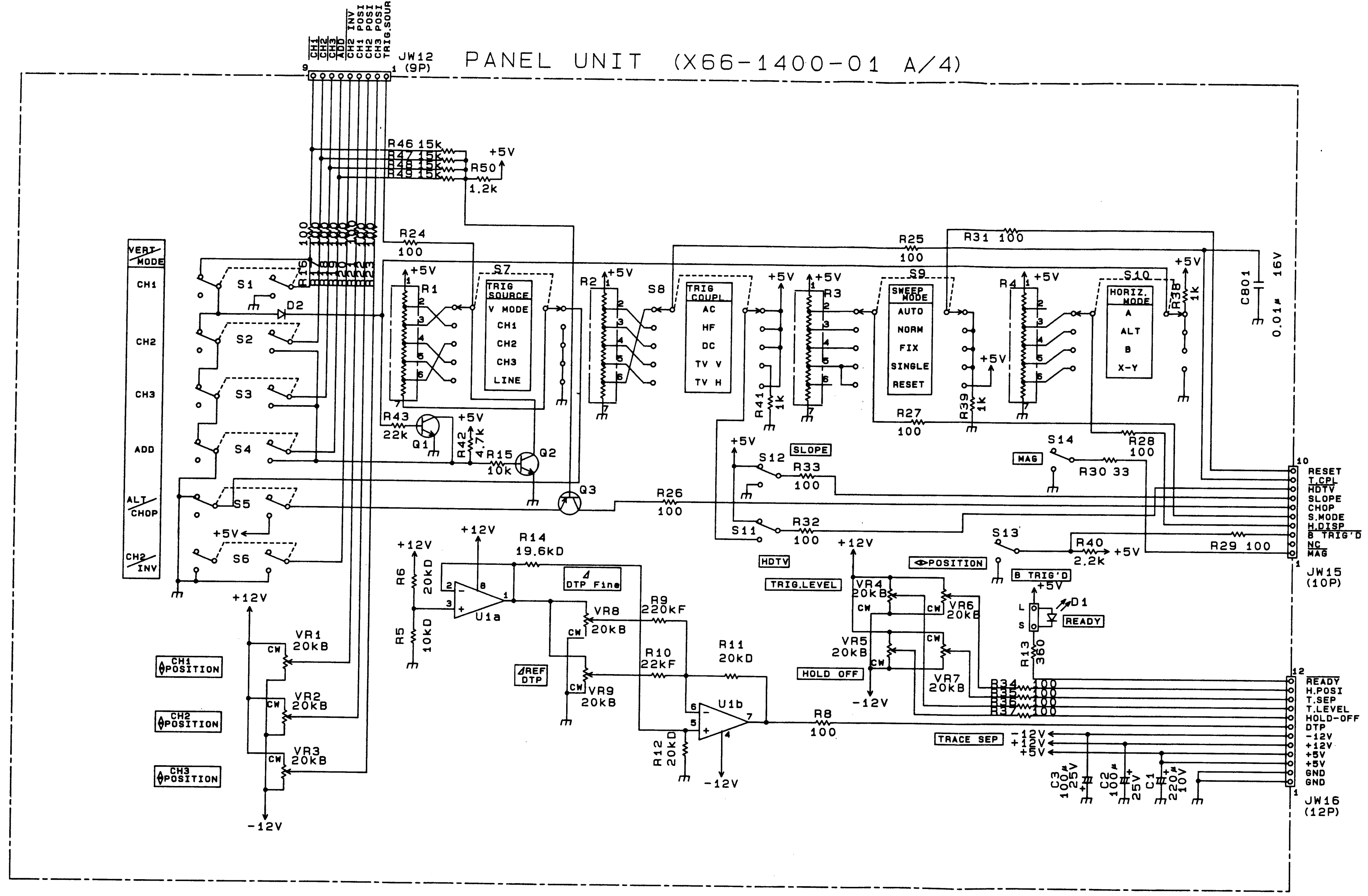
U101 :NJM4558L

Q101, 102 :2SC1740 (R, S)
Q103 :2SC1318A (R)
Q104 :2SA720A (R)

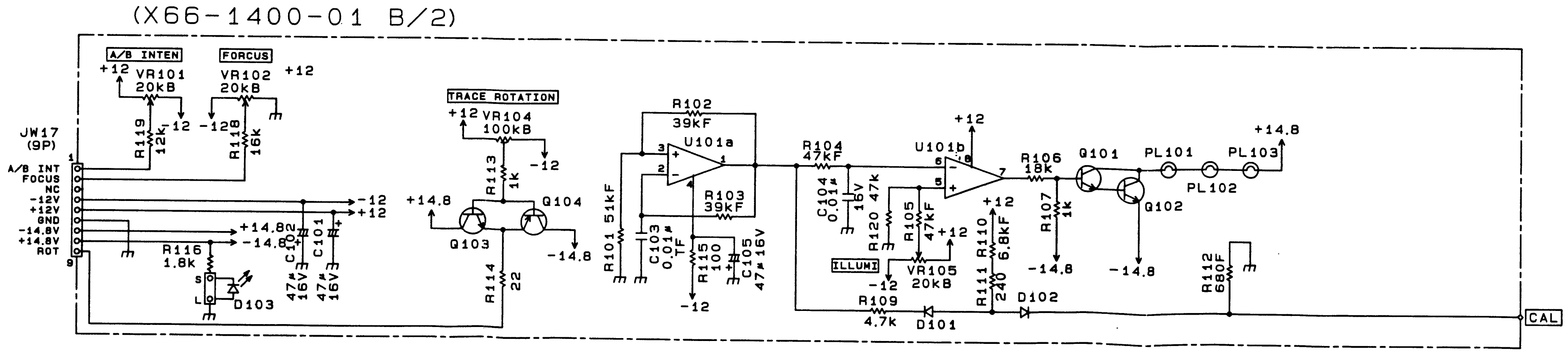
D101, 102 :1SS132
D103 :LN322GP

CS-5275 SCHEMATIC DIAGRAM

PANEL UNIT (X66-1400-01)


PANEL UNIT (X66-1400-01 A/4)
JW12 (9P)
CH1
CH2
CH3
ADD
CH2 INV
CH1 POSI
CH2 POSI
CH3 POSI
TRIG.SOURCE
R46 15k
R47 15k
R48 15k
R49 15k
R50 1.2k
+5V
VERT MODE
CH1
CH2
CH3
ADD
ALT/CHOP
CH2 INV
S1
S2
S3
S4
S5
S6
D2
R24 100
S7
TRIG SOURCE
V MODE
CH1
CH2
CH3
LINE
R1
R43 22k
Q1
R42 4.7k
R15 10k
Q2
Q3
R26 100
S8
TRIG COUPL
AC
HF
DC
TV V
TV H
R2
R3
R41 1k
S9
SWEEP MODE
AUTO
NORM
FIX
SINGLE
RESET
R25 100
R27 100
R31 100
R39 1k
R4
S10
HORIZ. MODE
A
ALT
B
X-Y
R38 1k
C801 0.01μ 16V
S14
MAG
R28 100
R30 33
S12
SLOPE
R33 100
S11
R32 100
S13
R40 2.2k
R29 100
HDTV
TRIG.LEVEL
POSITION
B TRIG'D
D1
READY
R13 360
VR4 20kB
VR5 20kB
VR6 20kB
VR7 20kB
HOLD OFF
R34 100
R35 100
R36 100
R37 100
TRACE SEP
C3 100μ 25V
C2 100μ 25V
C1 220μ 10V
+12V
-12V
R6 20kD
R5 10kD
U1a
R14 19.6kD
DTP Fine
VR8 20kB
REF DTP
VR9 20kB
R9 220kF
R10 22kF
R11 20kD
U1b
R12 20kD
R8 100
CH1 POSITION
CH2 POSITION
CH3 POSITION
VR1 20kB
VR2 20kB
VR3 20kB
CW
RESET
T.CPL
HDTV
SLOPE
CHOP
S.MODE
H.DISP
B TRIG'D
NC
MAG
JW15 (10P)
READY
H.POSI
T.SEP
T.LEVEL
HOLD-OFF
DTP
-12V
+12V
+5V
+5V
GND
GND
JW16 (12P)

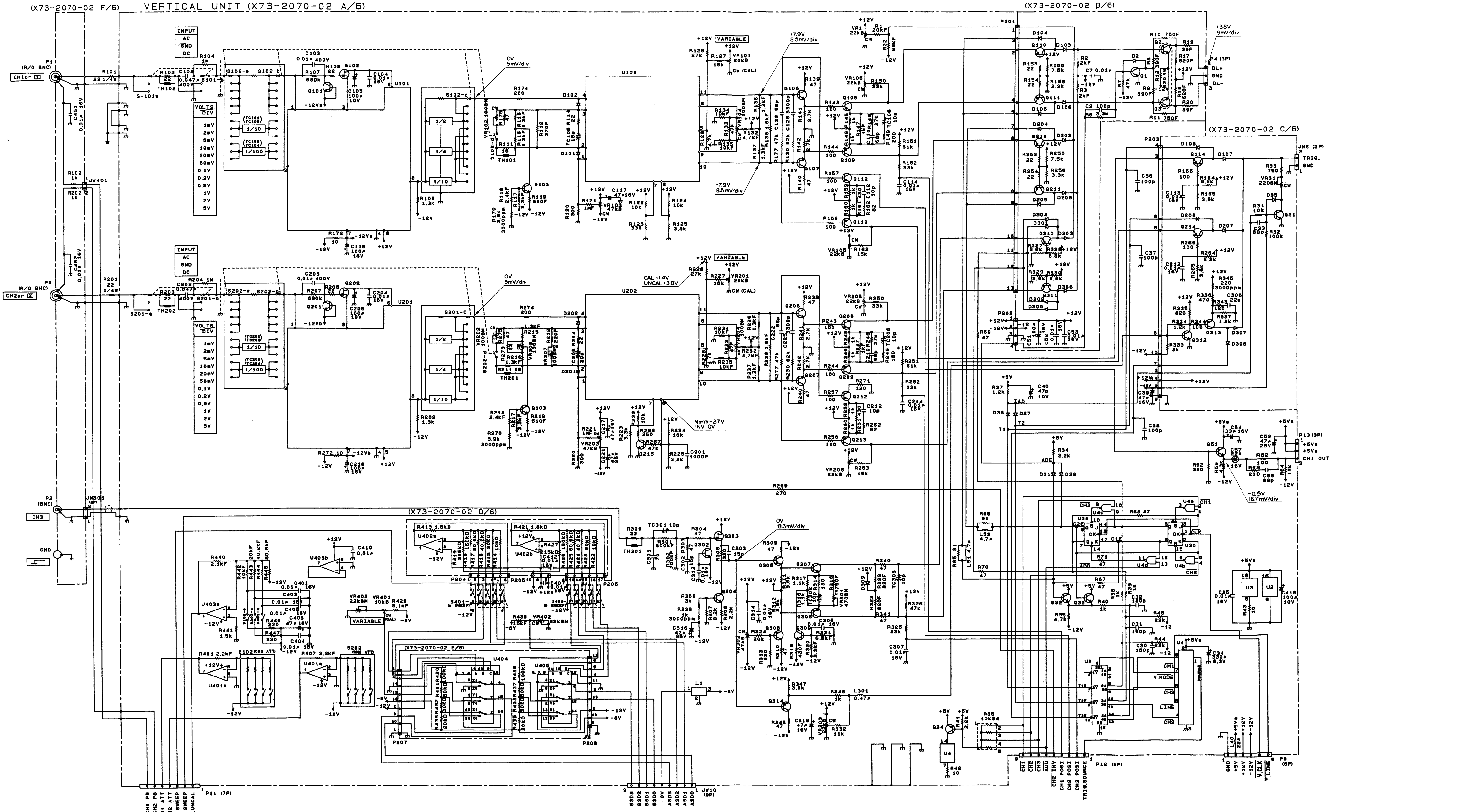
Q1	2SC1740S (R, S)
Q2	2SC1740S (R, S)
Q3	2SA933S (R, S)
U1	NJM4558L
D1	LN322GP
D2	1SS132


(X66-1400-01 B/2)
A/B INTEN
FORCUS
VR101 20kB
VR102 20kB
R119 12k
R118 16k
JW17 (9P)
A/B INT
FOCUS
NC
-12V
+12V
GND
-14.8V
+14.8V
ROT
R116 1.8k
D103
C102 47μ 16V
C101 47μ 16V
TRACE ROTATION
VR104 100kB
R113 1k
Q103
Q104
R114 22
+14.8
-14.8
R102 39kF
U101a
R103 39kF
R101 51kF
C103 0.01μ TF
R115 100
C105 47μ 16V
R104 47kF
C104 0.01μ 16V
R120 47k
R105 47kF
ILLUMI
VR105 20kB
R109 4.7k
D101
U101b
R110 6.8kF
R111 240
D102
R106 18k
R107 1k
Q101
Q102
PL101
PL102
PL103
R112 680F
CAL
+12
-12

U101	NJM4558L
Q101	2SC1740S (R, S)
Q102	2SC1740S (R, S)
Q103	2SC1318A (R)
Q104	2SA720A (R)
D101	1SS132
D102	1SS132
D103	LN322GP

VERTICAL UNIT (X73-2070-02)

CS-5270 SCHEMATIC DIAGRAM


(X73-2070-02 F/6)
VERTICAL UNIT (X73-2070-02 A/6)
(X73-2070-02 B/6)
(X73-2070-02 C/6)
(X73-2070-02 D/6)
(X73-2070-02 E/6)
P1 (R/O BNC)
CH1or Y
P2 (R/O BNC)
CH2or X
P3 (BNC)
CH3
GND
INPUT AC GND DC
VOLTS/DIV 1mV 2mV 5mV 10mV 20mV 50mV 0.1V 0.2V 0.5V 1V 2V 5V
U101
U102
U201
U202
VARIABLE
CW (CAL)
0V 5mV/div
+7.9V 8.5mV/div
CAL+1.4V UNCAL+3.8V
Norm+27V INV 0V
0V 18.3mV/div
+3.8V 9mV/div
+0.5V 16.7mV/div
P4 (3P) DL+ GND DL-
JW6 (2P) TRIG. GND
P13 (3P) +5Va +5Va CH1 OUT
P11 (7P)
CH1 PB CH2 PB CH1 ATT CH2 ATT A SWEEP B SWEEP H.UNCAL
JW10 (9P)
BSD3 BSD2 BSD1 BSD0 -8V ASD3 ASD2 ASD1 ASD0
P12 (9P)
CH1 CH2 CH3 ADD CH2 INV CH1 POSI CH2 POSI CH3 POSI TRIG.SOURCE
P9 (6P)
GND +5V +12V -12V V.CLK T.LINE
CH1 CH2 V.MODE CH3 LINE

U1 :KMS01
U2 :SN74LS158N
U3 :SN74LS112AN
U4 :SN74LS00N
U101, 201 :KMC13
U102, 202 :KMC12
U401 :NJM072L
U402 :NJM072D
U403 :NJM4558L
U404, 405 :TC4053BP

Q1, 33, 215 :2SC1740S (R, S)
Q2, 3, 106, 107, 206, 207 :2SC3779 (D)
Q34 :2SA933S (R, S)
Q51, 101, 201, 302 :2SC1923 (O)
Q102, 202, 303 :2SK404 (E)
Q103, 203, 304, 307~309, 312 :2SC1907
Q108~111, 114, 208~211, 214, 305 306, 310, 311, 313, 314 :2SA1459 (K)

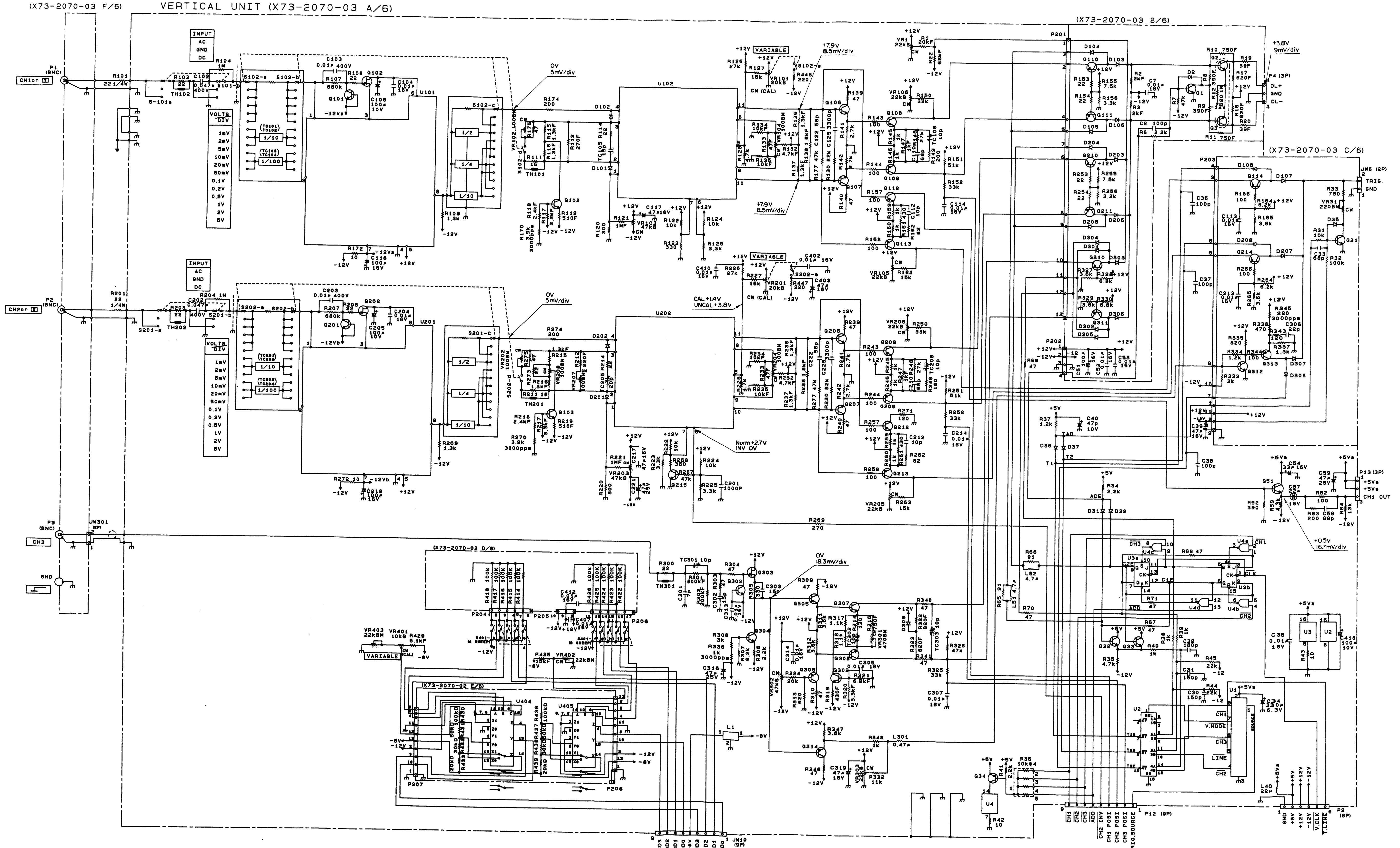
Q112, 113, 212, 213 :2SA1161

D2, 31, 32, 35~37, 101~108, 201~208 301~309 :1SS132

TH101, 201 :112-102-2
TH102, 202, 301 :112-201-2FM

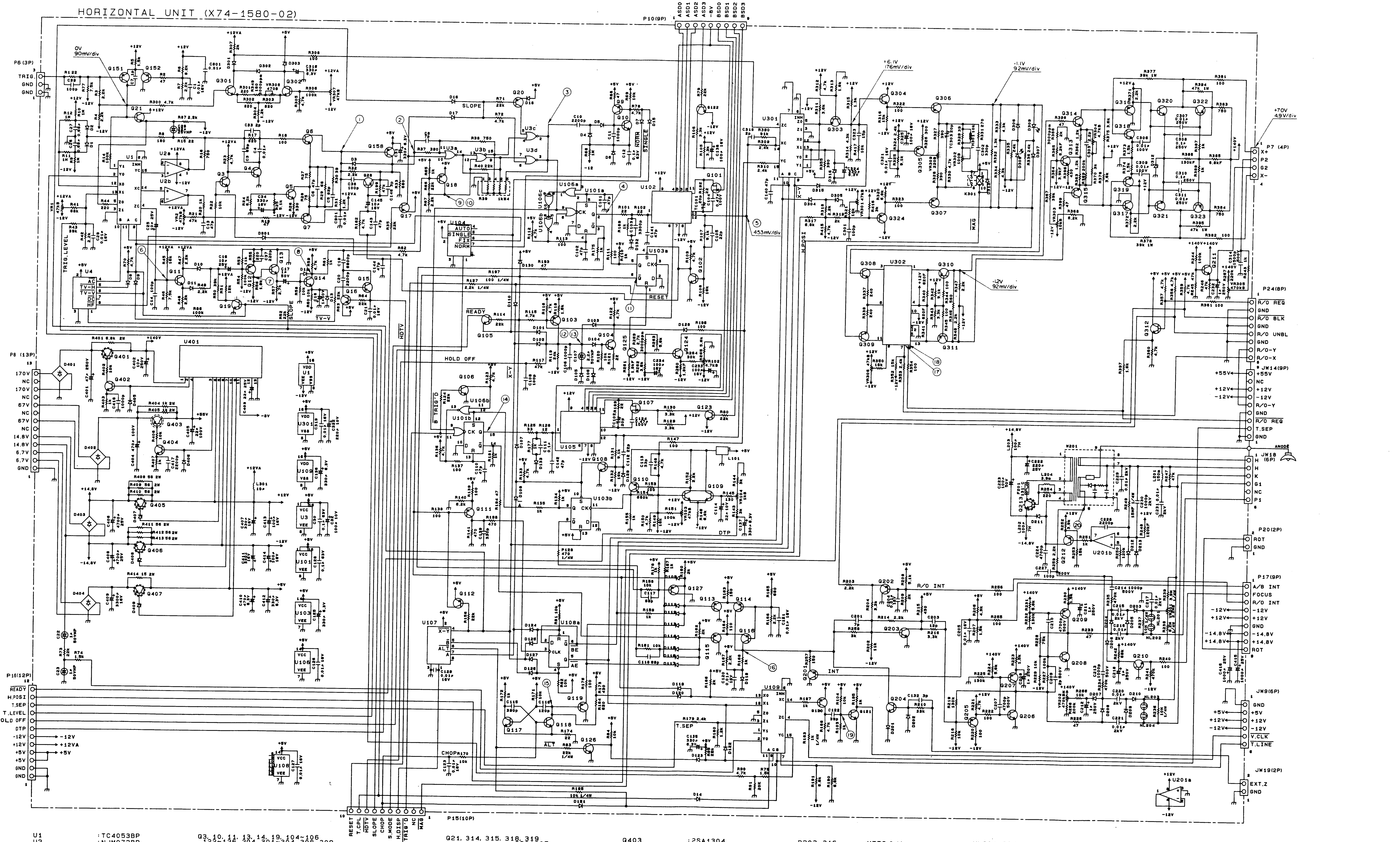
VERTICAL UNIT (X73-2070-03)

CS-5275 SCHEMATIC DIAGRAM


(X73-2070-03 F/6)
VERTICAL UNIT (X73-2070-03 A/6)
(X73-2070-03 B/6)
(X73-2070-03 C/6)
(X73-2070-03 D/6)
(X73-2070-02 E/6)
CH1or Y
CH2or X
CH3
GND
INPUT
AC
GND
DC
VOLTS/DIV
1mV
2mV
5mV
10mV
20mV
50mV
0.1V
0.2V
0.5V
1V
2V
5V
VARIABLE
CW (CAL)
0V 5mV/div
+7.9V 8.5mV/div
CAL+1.4V UNCAL+3.8V
Norm+2.7V INV 0V
0V 18.3mV/div
+3.8V 9mV/div
+0.5V 16.7mV/div
U101
U102
U201
U202
U404
U405
TRIG.
CH1 OUT
DL+
GND
DL-
JW10 (9P)
BSD3
BSD2
BSD1
BSD0
-8V
ASD3
ASD2
ASD1
ASD0
P12 (9P)
CH1
CH2
CH3
ADD
CH2 INV
CH1 POSI
CH2 POSI
CH3 POSI
TRIG.SOURCE
P9 (8P)
V.MODE
LINE
SOURCE
T.LINE
V.CLK

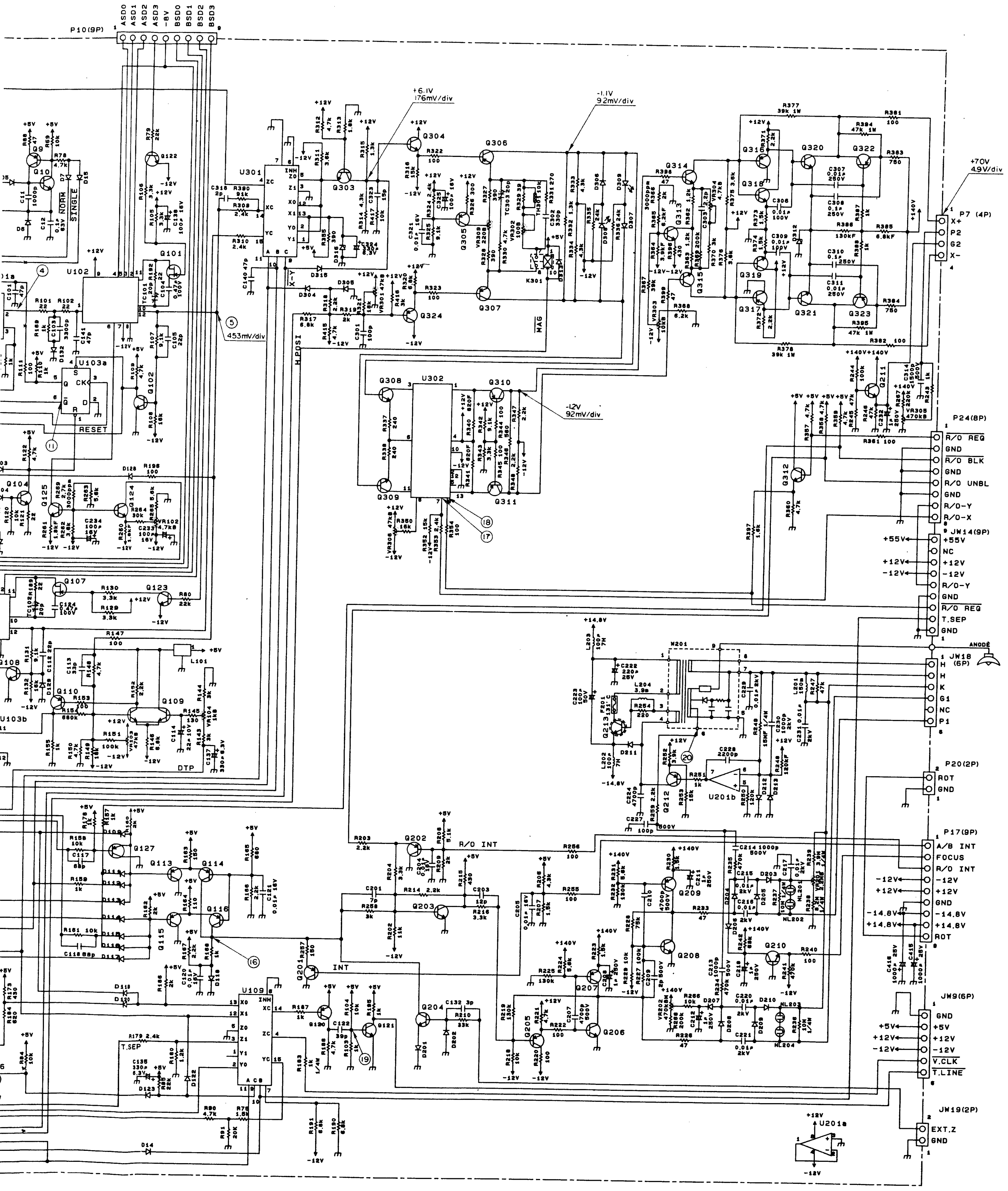
U1	:KMS01
U2	:SN74LS158N
U3	:SN74LS112AN
U4	:SN74LS00N
U101, 201	:KMC13
U102, 202	:KMC12
U404, 405	:TC4053BP
Q1, 33, 215	:2SC1740S (R, S)
Q2, 3, 106, 107, 206, 207	:2SC3779 (D)
Q32	:2SC3066 (G)
Q34	:2SA933S (R, S)
Q51, 101, 201, 302	:2SC1923 (O)
Q102, 202, 303	:2SK404 (E)
Q103, 203, 304, 307~309, 312	:2SC1907
Q108~111, 114, 208~211, 214, 305 306, 310, 311, 313, 314	:2SA1459 (K)
Q112, 113, 212, 213	:2SA1161
D2, 31, 32, 35~37, 101~108, 201~208 301~309	:1SS132
TH101, 201	:112-102-2
TH102, 202, 301	:112-201-2FM

HORIZONTAL UNIT (X74-1580-02)


HORIZONTAL UNIT (X74-1580-02)
P6 (3P)
TRIG.
GND
GND
P10(9P)
ASD0
ASD1
ASD2
ASD3
-8V
BSD0
BSD1
BSD2
BSD3
P7 (4P)
X+
P2
G2
X-
+70V 49V/div
+6.1V 176mV/div
-1.1V 92mV/div
-12V 92mV/div
0V 90mV/div
453mV/div
P8 (13P)
170V
NC
170V
NC
67V
NC
67V
NC
14.8V
14.8V
6.7V
6.7V
GND
P24(8P)
R/O REQ
GND
R/O BLK
GND
R/O UNBL
GND
R/O-Y
R/O-X
JW14(9P)
+55V
NC
+12V
-12V
R/O-Y
GND
R/O REQ
T.SEP
R/O
JW18 (6P)
H
H
K
G1
NC
P1
ANODE
P20(2P)
ROT
GND
P17(9P)
A/B INT
FOCUS
R/O INT
-12V
+12V
GND
-14.8V
+14.8V
ROT
JW9(6P)
GND
+5V
+12V
-12V
V.CLK
T.LINE
JW19(2P)
EXT.Z
GND
P16(12P)
READY
H.POSI
T.SEP
T.LEVEL
HOLD OFF
DTP
-12V
+12V
+5V
+5V
GND
GND
P15(10P)
RESET
T.CPL
HDTV
SLOPE
CHOP
S.MODE
H.DISP
B TRIG'D
NC
MAG
TRIG.LEVEL
SLOPE
HOLD OFF
X-Y
HDTV
B TRIG'D
NORM
SINGLE
AUTO
FIX
READY
RESET
DTP
ALT
CHOP
INT
R/O INT
T.SEP
MAG
U401
U301
U302
U201a
U201b

U1	:TC4053BP
U2	:NJM072BD
U3	:MC10H102L
U4, 104, 107	:KMS01
U101	:MC10H131L
U102, 105	:KMD05
U103, 108	:SN74ALS74AN
U106	:SN74ALS02N
U109, 301	:TC74HC4053AP
U201	:NJM4558D
U302	:KMG01
U401	:KMA02
Q3, 10, 11, 13, 14, 19, 104~106 122~126, 204, 301~304, 308, 309 312, 313	:2SC1740S (R, R)
Q4, 5, 102, 108, 117, 118, 121, 203	:2SC1923 (O)
Q6, 7	:2SC3779 (D)
Q9, 28, 110, 120, 151, 152, 158, 316 317	:2SA1459 (K)
Q12, 15, 16, 113~116, 127, 306, 307	:2SA1005 (K)
Q17, 18, 20, 103, 111, 112, 119, 201 202, 205, 212, 305, 310, 311, 324	:2SA933S (R, S)
Q21, 314, 315, 318, 319	:2SC1907
Q101, 107	:2SK170 (V)
Q109	:2SC3066 (G)
Q206, 208	:2SC2910 (S)
Q207, 209	:2SA1208 (S)
Q210, 211, 402, 404	:2SC2551 (O)
Q213	:2SD613 (E)
Q320, 321	:2SC4732 (E)
Q322, 323	:2SA1828 (E)
Q401	:2SA1499 (P)
Q403	:2SA1304
Q405, 407	:2SB1015 (Y)
Q406	:2SD1406 (Y)
D1~5, 12, 109, 114, 130, 132, 133 301, 306, 307, 801	:MA700
D6~11, 13~18, 101~108, 110~113 115~129, 201, 202, 211, 212, 213 302, 304, 305, 313, 315, 405, 406	:1SS132
D203~210	:1SS83
D303, 316	:MTZ3.0JA
D308, 309	:TLR112
D312	:MTZ5.1JB
D401, 402, 404	:S1VB60
D403	:S4VB20F
D407, 408	:MTZ13JC
D409	:MTZ7.5JA
TH301	:112-103-2FM
NL201~204	:NE-38B

CS-5270 SCHEMATIC DIAGRAM


P10(9P)
ASD0
ASD1
ASD2
ASD3
-8V
BSD0
BSD1
BSD2
BSD3
+6.1V
176mV/div
-1.1V
92mV/div
+70V
4.9V/div
453mV/div
-12V
92mV/div
P7 (4P)
X+
P2
S2
X-
P24(8P)
R/O REQ
GND
R/O BLK
GND
R/O UNBL
GND
R/O-Y
R/O-X
JW14(9P)
+55V
NC
+12V
-12V
R/O-Y
GND
R/O REQ
T.SEP
GND
JW18 (6P)
ANODE
H
H
K
G1
NC
P1
P20(2P)
ROT
GND
P17(9P)
A/B INT
FOCUS
R/O INT
-12V
+12V
GND
-14.8V
+14.8V
ROT
JW9(6P)
GND
+5V
+12V
-12V
V.CLK
T.LINE
JW19(2P)
EXT.Z
GND
U201a
NORM
SINGLE
RESET
DTP
R/O INT
INT
T.SEP
MAG
U301
U302
U102
U103a
U103b
U109
U201b

Q403 :2SA1304
Q405, 407 :2SB1015 (Y)
Q406 :2SD1406 (Y)

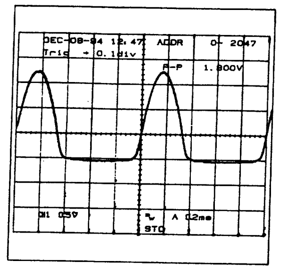
D1~5, 12, 109, 114, 130, 132, 133
301, 306, 307, 801
:MA700
D6~11, 13~18, 101~108, 110~113
115~129, 201, 202, 211, 212, 213
302, 304, 305, 313, 315, 405, 406
:1SS132
D203~210 :1SS83

D303, 316 :MTZ3.0JA
D308, 309 :TLR112
D312 :MTZ5.1JB
D401, 402, 404 :S1VB60
D403 :S4VB20F
D407, 408 :MTZ13JC
D409 :MTZ7.5JA

TH301 :112-103-2FM

NL201~204 :NE-38B

①



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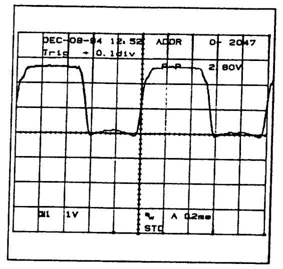
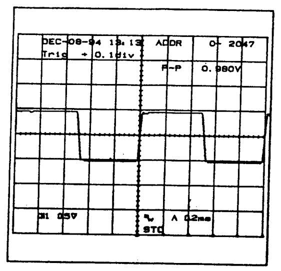
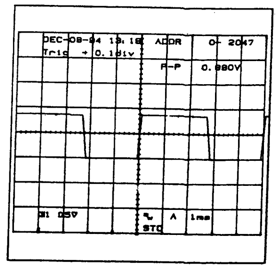


③



④



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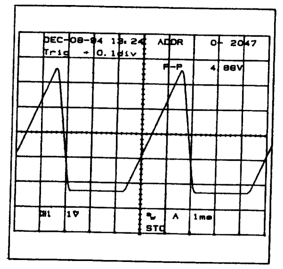
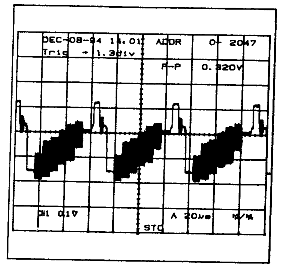


⑥



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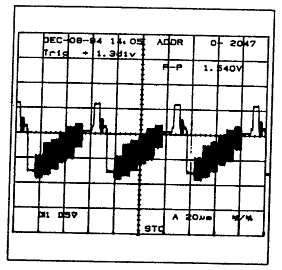
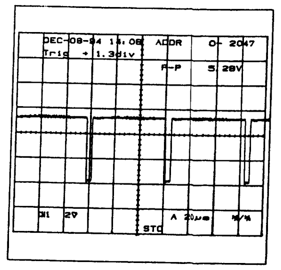
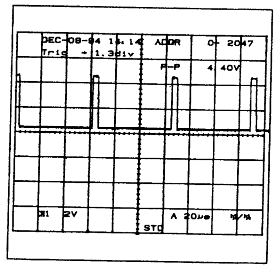


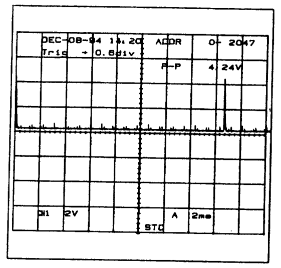
⑧



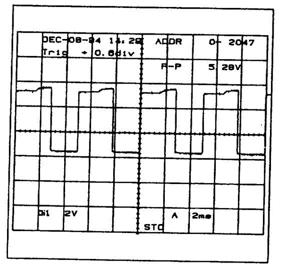
⑨ NTSC INPUT 4div,
Color Bar TV-H



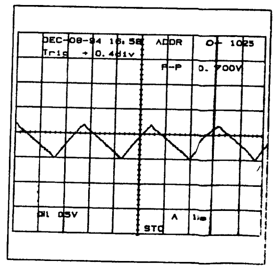
⑩ NTSC INPUT 4div,
Color Bar TV-V



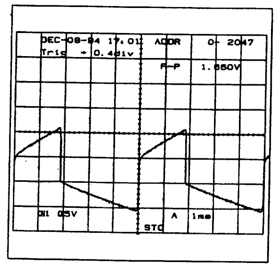
⑪



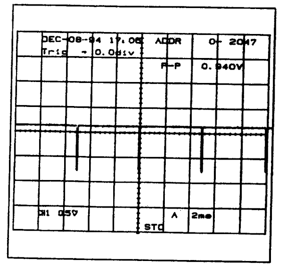
⑫



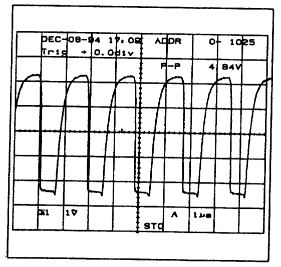
⑬



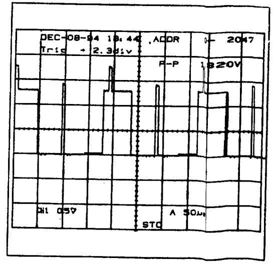
⑭ A: 0.2ms/div
B: 5µs/div, ALT MODE



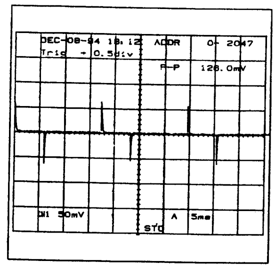
⑮ CH1/CH2: ON, CHOP ON



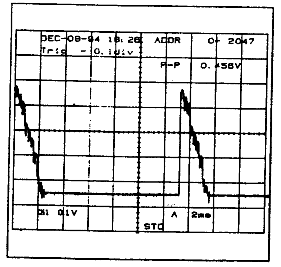
⑯ A: 0.5ms/div
B: 50µs/div, ALT MODE



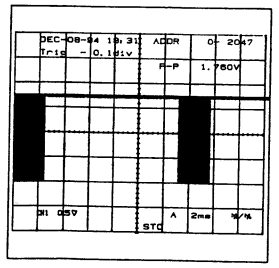
⑰



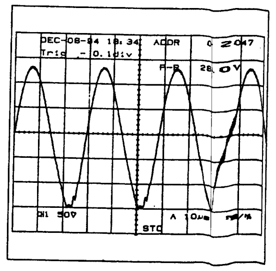
⑱



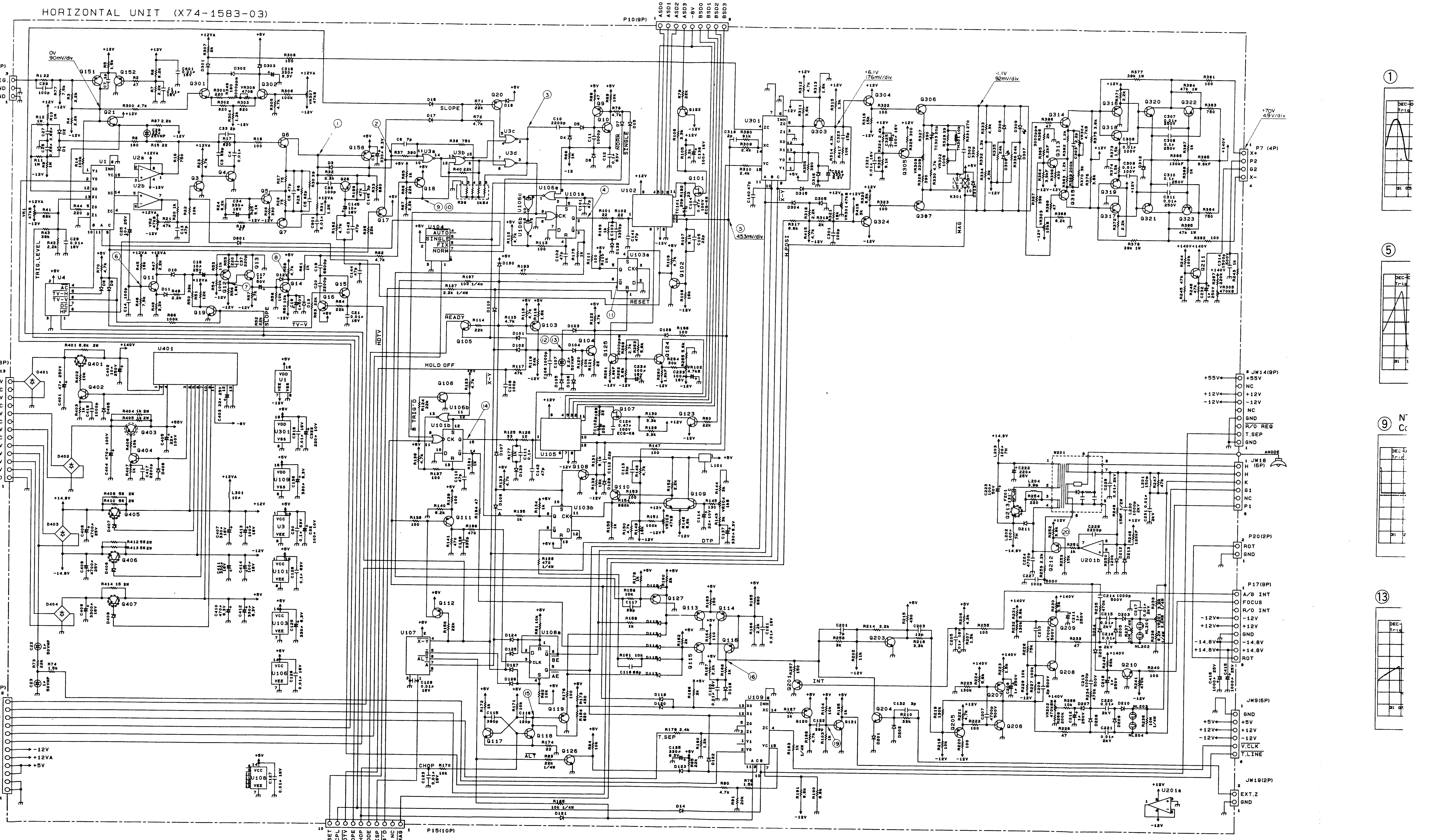
⑲



⑳



HORIZONTAL UNIT (X74-1580-03)


HORIZONTAL UNIT (X74-1583-03)
P10(9P)
ASD0
ASD1
ASD2
ASD3
+5V
BSD0
BSD1
BSD2
BSD3
P6 (3P)
TRIG.
GND
GND
0V
90mV/div
TRIG.LEVEL
SLOPE
AUTO
SINGLE
FIX
NORM
READY
HOLD OFF
HDTV
X-Y
B TRIG'D
RESET
TV-V
TV-H
AC
DC
HF
DTP
ALT
CHOP
INT
T.SEP
H.POSI
MAG
+6.1V
176mV/div
-1.1V
92mV/div
+70V
4.9V/div
453mV/div
P7 (4P)
X+
P2
G2
X-
JW14(9P)
+55V
NC
+12V
-12V
GND
R/O REQ
T.SEP
ANODE
JW18 (6P)
H
K
G1
P1
P20(2P)
ROT
P17(9P)
A/B INT
FOCUS
R/O INT
-14.8V
+14.8V
JW9(6P)
V.CLK
T.LINE
JW19(2P)
EXT.Z
P8 (13P)
170V
67V
14.8V
6.7V
P16(12P)
READY
H.POSI
T.SEP
T.LEVEL
HOLD OFF
DTP
-12V
+12V
+5V
GND
+12VA
P15(10P)
RESET
T.CPL
HDTV
SLOPE
CHOP
S.MODE
H.DISP
B TRIG'D
NC
MAG
U401
U102
U105
U109
U301
U104
U107
U201a
U201b
K301
TH301
①
⑤
⑨
⑬
DEC-
Trig

U1 :4053BP
U2 :NJM072BD
U3 :MC10H102L
U4, 107, 104 :KMS01
U101 :MC10H131L
U102, 105 :KMD05
U103, 108 :SN74ALS74AN
U106 :SN74ALS02N
U109, 301 :TC74HC4053AP
U201 :NJM4558D
U401 :KMA02

Q3, 10, 11, 13, 14, 19, 104~106, 122 123~126, 204, 301~304, 313 :2SC1740S (R, S)
Q4, 5, 102, 108, 117, 118, 121, 203 :2SC1923 (O)
Q6, 7 :2SC3779 (D)
Q9, 28, 110, 120, 151, 152, 158, 316 317 :2SA1459 (K)
Q12, 15, 16, 113~116, 127, 306, 307 :2SA1005 (K)
Q17, 18, 20, 103, 111, 112, 119, 201 205, 212, 305, 324 :2SA933S (R, S)

Q21, 314, 315, 318, 319 :2SC1907
Q101, 107 :2SK170 (V)
Q109 :2SC3066 (G)
Q206, 208 :2SC2910 (S)
Q207, 209 :2SA1208 (S)
Q210, 211, 402, 404 :2SC2551 (O)
Q213 :2SD613 (E)
Q320, 321 :2SC4732 (E)
Q322, 323 :2SA1828 (E)
Q401 :2SA1499 (P)

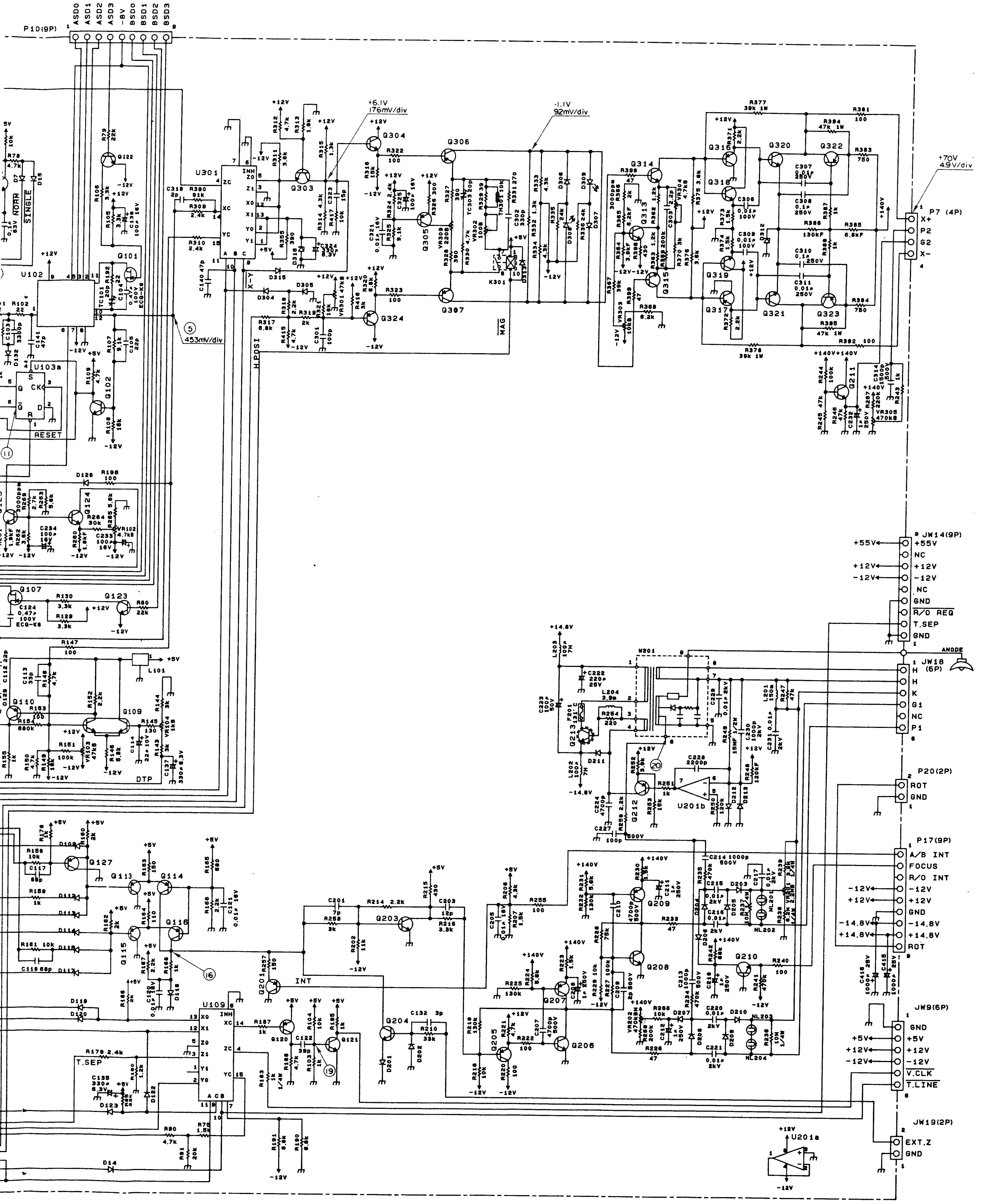
Q403 :2SA1304
Q405, 407 :2SB1015 (Y)
Q406 :2SD1406 (Y)

D1~5, 12, 109, 114, 130, 132, 133 301, 306, 307, 801 :MA700
D6~11, 13~18, 101~108, 110, 112 113, 115, 117~129, 201, 202, 211 212, 213, 302, 304, 305, 313, 315 405, 406 :1SS132

D203~210 :1SS83
D303, 316 :MTZ3.0JA
D308, 309 :TLR112
D312 :MTZ5.1JB
D401, 402, 404 :S1VB60
D403 :S4VB20F
D407, 408 :MTZ13JC
D409 :MTZ7.5JA

NL201~204 :NE-38

TH301 :112-103-2FM


P10(9P)
ASD0
ASD1
ASD2
ASD3
-8V
BSD0
BSD1
BSD2
BSD3
U301
U102
U103a
U109
U201a
U201b
+6.1V
176mV/div
-1.1V
92mV/div
+70V
4.9V/div
453mV/div
P7 (4P)
X+
P2
G2
X-
JW14(9P)
+55V
NC
+12V
-12V
GND
R/O REQ
T.SEP
JW18 (6P)
ANODE
H
K
G1
P1
P20(2P)
ROT
P17(9P)
A/B INT
FOCUS
R/O INT
-14.8V
+14.8V
JW9(6P)
+5V
V.CLK
T.LINE
JW19(2P)
EXT.Z
SINGLE
NORM
RESET
MAG
INT
DTP
HEDSI
T.SEP
K301
W201

403 :2SA1304
405, 407 :2SB1015 (Y)
406 :2SD1406 (Y)

~5, 12, 109, 114, 130, 132, 133
301, 306, 307, 801
:MA700
~11, 13~18, 101~108, 110, 112
13, 115, 117~129, 201, 202, 211
12, 213, 302, 304, 305, 313, 315
05, 406 :1SS132

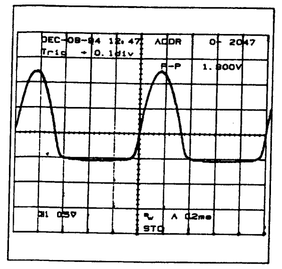
D203~210 :1SS83
D303, 316 :MTZ3.0JA
D308, 309 :TLR112
D312 :MTZ5.1JB
D401, 402, 404 :S1VB60
D403 :S4VB20F
D407, 408 :MTZ13JC
D409 :MTZ7.5JA

NL201~204 :NE-38

TH301 :112-103-2FM

CS-5275 SCHEMATIC DIAGRAM

①



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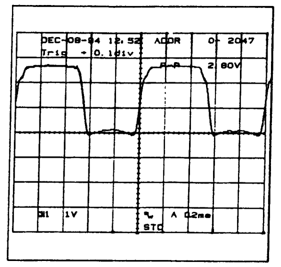

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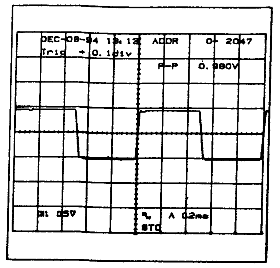

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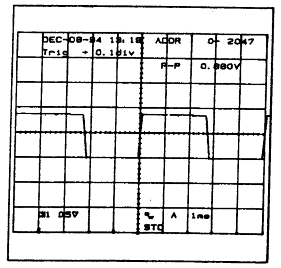

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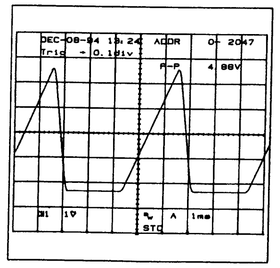

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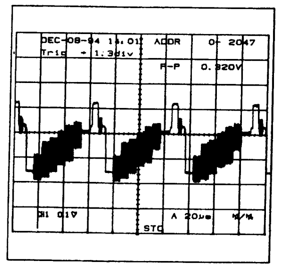

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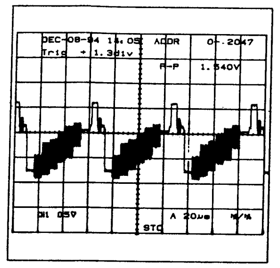
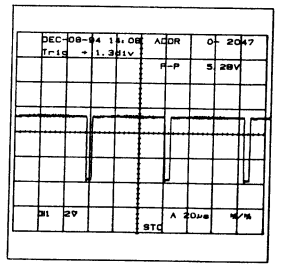
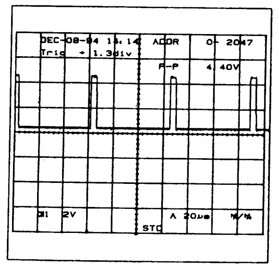


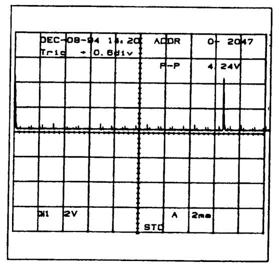
⑧



⑨ NTSC INPUT 4div,
Color Bar TV-H



⑩ NTSC INPUT 4div,
Color Bar TV-V



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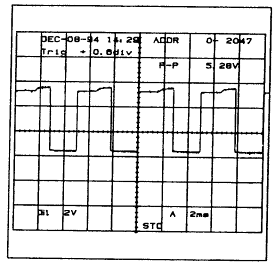

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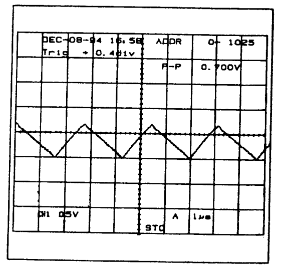

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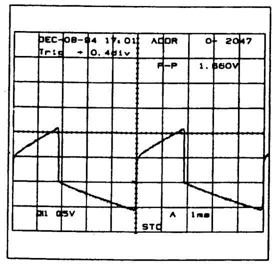
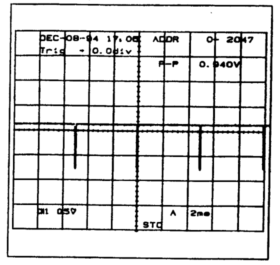
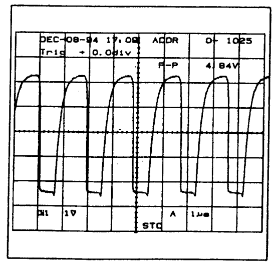


⑭ A: 0.2ms/div
B: 5µs/div, ALT MODE



⑮ CH1/CH2: ON, CHOP ON



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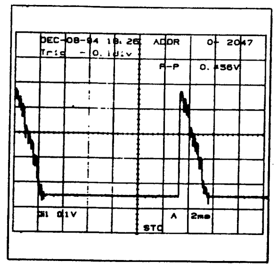
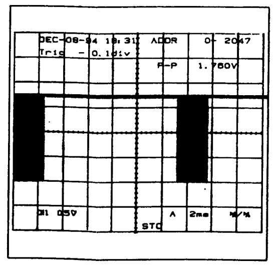
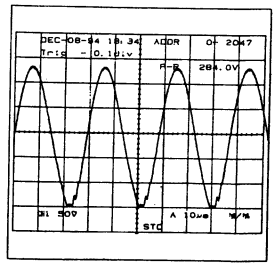


⑲

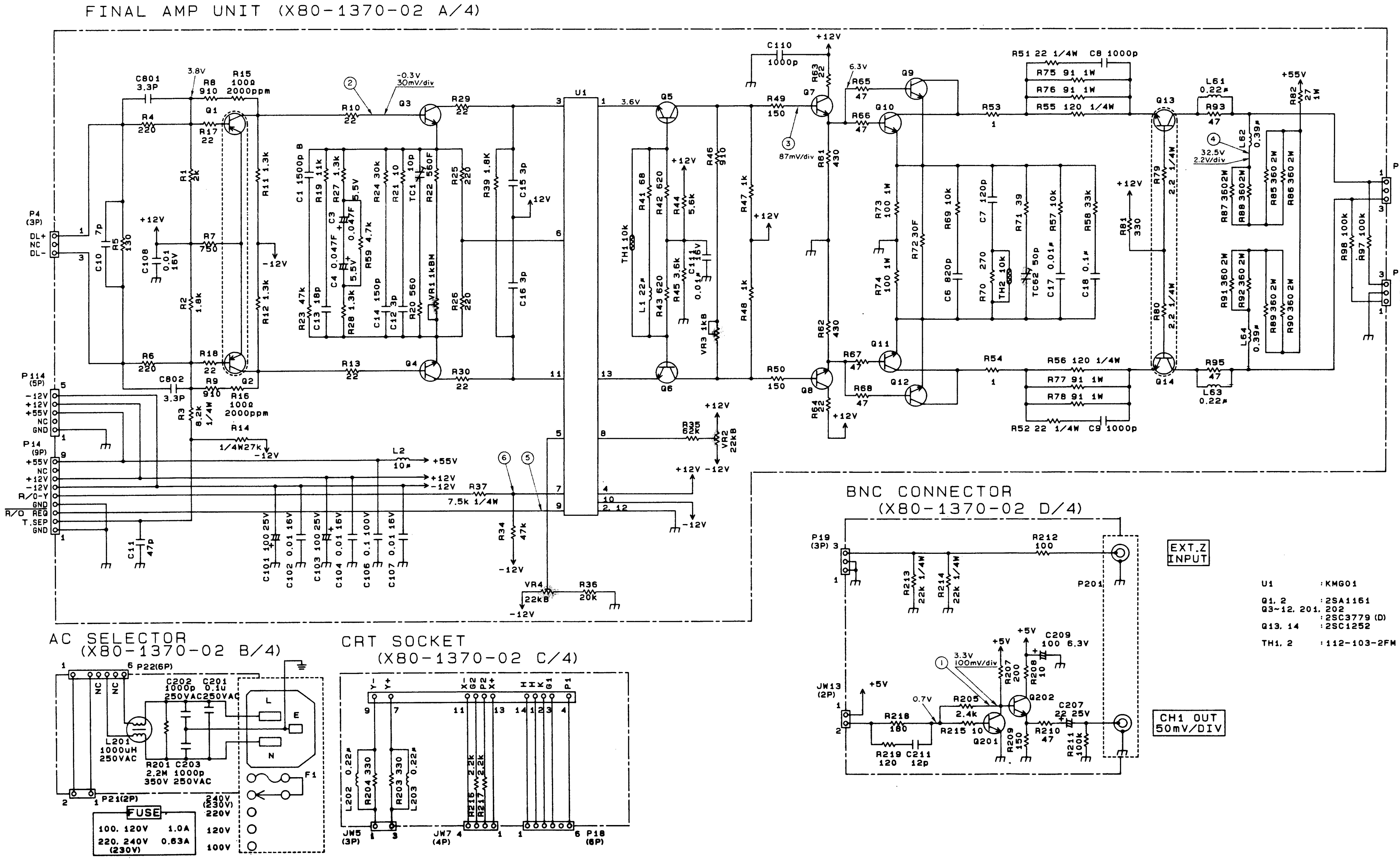


⑳



CS-5270 SCHEMATIC DIAGRAM

FINAL AMP UNIT (X80-1370-02)

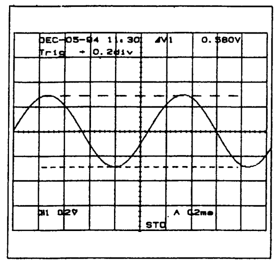

FINAL AMP UNIT (X80-1370-02 A/4)
AC SELECTOR (X80-1370-02 B/4)
CRT SOCKET (X80-1370-02 C/4)
BNC CONNECTOR (X80-1370-02 D/4)
EXT.Z INPUT
CH1 OUT 50mV/DIV
P4 (3P)
P5 (3P)
P105 (3P)
P114 (5P)
P14 (9P)
P19 (3P)
P21 (2P)
P22 (6P)
P18 (6P)
JW5 (3P)
JW7 (4P)
JW13 (2P)
P201
U1
FUSE
100. 120V 1.0A
220. 240V (230V) 0.63A
240V (230V)
220V
120V
100V
+55V
+12V
-12V

U1 : KMG01

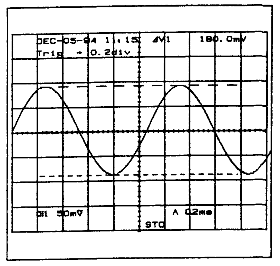
Q1, 2 : 2SA1161
Q3~12, 201, 202
: 2SC3779 (D)
Q13, 14 : 2SC1252

TH1, 2 : 112-103-2FM

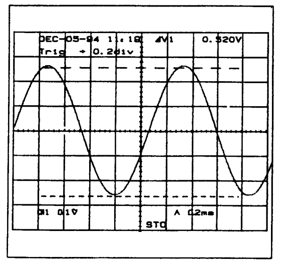
① INPUT: 1kHz 6div
5mV/div



②



③



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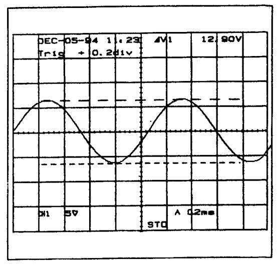
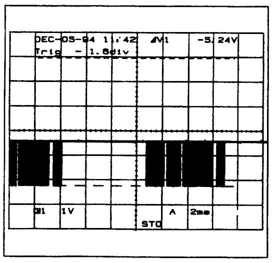
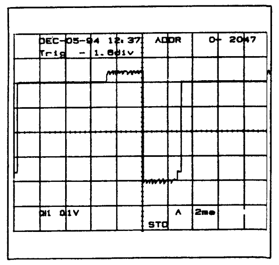


⑤

GND →
CH1
ΔV1 cursor
+3div, -3div

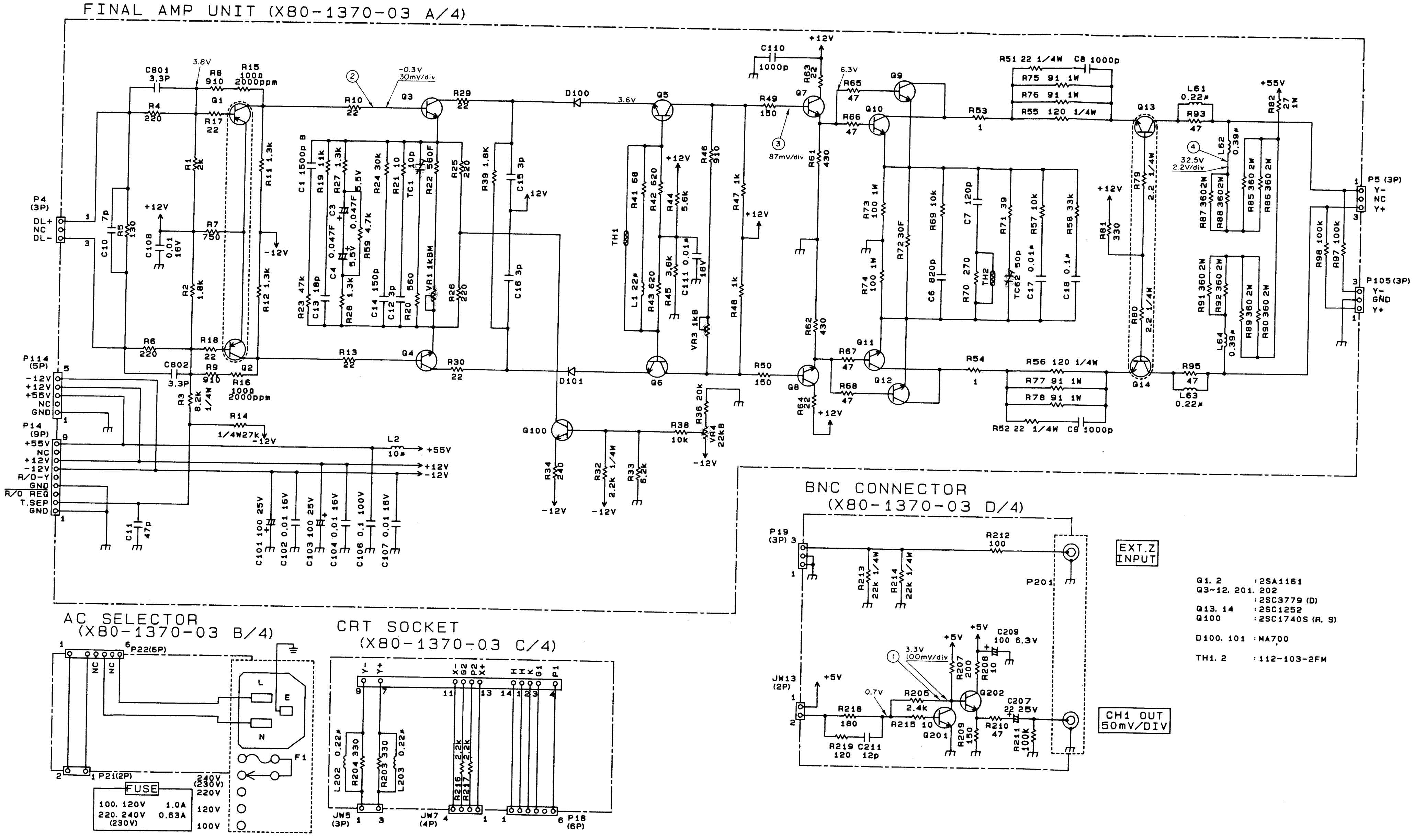


⑥



CS-5275 SCHEMATIC DIAGRAM

FINAL AMP UNIT (X80-1370-03)


FINAL AMP UNIT (X80-1370-03 A/4)
P4 (3P)
DL+
NC
DL-
C801 3.3P
3.8V
R8 910
R15 100Ω 2000ppm
R4 220
Q1
R17 22
R1 2k
R5 130
C10 7p
+12V
C108 0.01 16V
R7 750
R11 1.3k
R12 1.3k
-12V
R2 1.8k
R6 220
R18 22
Q2
C802 3.3P
R9 910
R16 100Ω 2000ppm
R3 8.2k 1/4W
R14 1/4W27k
②
-0.3V 30mV/div
R10 22
Q3
R29 22
C1 1500p B
R19 11k
R27 1.3k
C3 0.047F
5.5V
R59 4.7k
C4 0.047F
R24 30k
R21 10
TC1 10p
R22 560F
R25 220
R23 47k
C13 18p
R28 1.3k
C14 150p
C12 3p
R20 560
VR1 1kBM
R26 220
R13 22
Q4
R30 22
R39 1.8K
C15 3p
C16 3p
12V
D100
3.6V
D101
Q5
Q6
TH1
R41 68
L1 22μ
R42 620
R43 620
R44 5.6k
R45 3.6k
C111 0.01μ 16V
VR3 1kB
R46 910
R47 1k
R48 1k
Q100
R34 240
R32 2.2k 1/4W
R33 6.2k
R38 10k
R36 20k
VR4 22kB
P114 (5P)
-12V
+12V
+55V
NC
GND
P14 (9P)
+55V
NC
+12V
-12V
R/O-Y
GND
R/O REQ
T.SEP
GND
C11 47p
L2 10μ
+55V
+12V
-12V
C101 100 25V
C102 0.01 16V
C103 100 25V
C104 0.01 16V
C106 0.1 100V
C107 0.01 16V
C110 1000p
+12V
R63 22
Q7
6.3V
R49 150
③
87mV/div
R61 430
R62 430
R65 47
R66 47
Q9
Q10
R50 150
Q8
R64 22
R67 47
R68 47
Q11
Q12
R73 100 1W
R74 100 1W
R72 30F
R69 10k
C6 820p
C7 120p
R70 270
TH2
R71 39
TC62 50p
R57 10k
C17 0.01μ
R58 33k
C18 0.1μ
R51 22 1/4W
C8 1000p
R75 91 1W
R76 91 1W
R55 120 1/4W
R53 1
R54 1
R56 120 1/4W
R77 91 1W
R78 91 1W
R52 22 1/4W
C9 1000p
+12V
R81 330
Q13
Q14
R79 2.2 1/4W
R80 2.2 1/4W
L61 0.22μ
R93 47
L62 0.39μ
④
32.5V 2.2V/div
R87 3602W
R88 3602W
R85 360 2W
R86 360 2W
R91 360 2W
R92 360 2W
R89 360 2W
R90 360 2W
L64 0.39μ
R95 47
L63 0.22μ
+55V
R82 27 1W
R98 100k
R97 100k
P5 (3P)
Y-
NC
Y+
P105(3P)
Y-
GND
Y+
BNC CONNECTOR (X80-1370-03 D/4)
P19 (3P)
R212 100
R213 22k 1/4W
R214 22k 1/4W
P201
EXT.Z INPUT
JW13 (2P)
+5V
0.7V
R218 180
R219 120
C211 12p
R205 2.4k
R215 10
Q201
①
3.3V 100mV/div
R207 200
R208 10
C209 100 6.3V
Q202
R209 150
R210 47
C207 22 25V
R211 100k
CH1 OUT 50mV/DIV
AC SELECTOR (X80-1370-03 B/4)
P22(6P)
NC
NC
L
E
N
F1
P21(2P)
FUSE
100, 120V 1.0A
220, 240V (230V) 0.63A
240V (230V)
220V
120V
100V
CRT SOCKET (X80-1370-03 C/4)
Y-
Y+
X-
G2
P2
X+
H
H
K
G1
P1
L202 0.22μ
R204 330
R203 330
L203 0.22μ
R216 2.2k
R217 2.2k
JW5 (3P)
JW7 (4P)
P18 (6P)

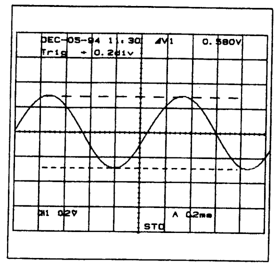
Q1, 2 : 2SA1161
Q3~12, 201, 202 : 2SC3779 (D)
Q13, 14 : 2SC1252
Q100 : 2SC1740S (R, S)

D100, 101 : MA700

TH1, 2 : 112-103-2FM

①

INPUT: 1kHz 6div
5mV/div



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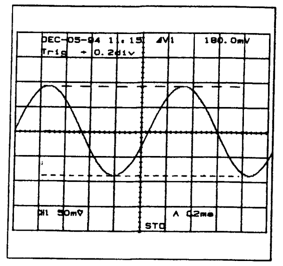

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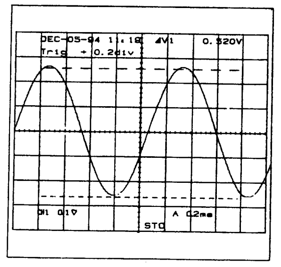

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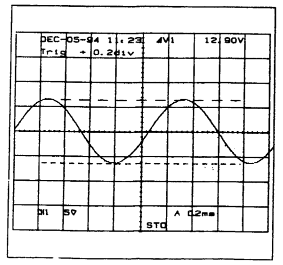
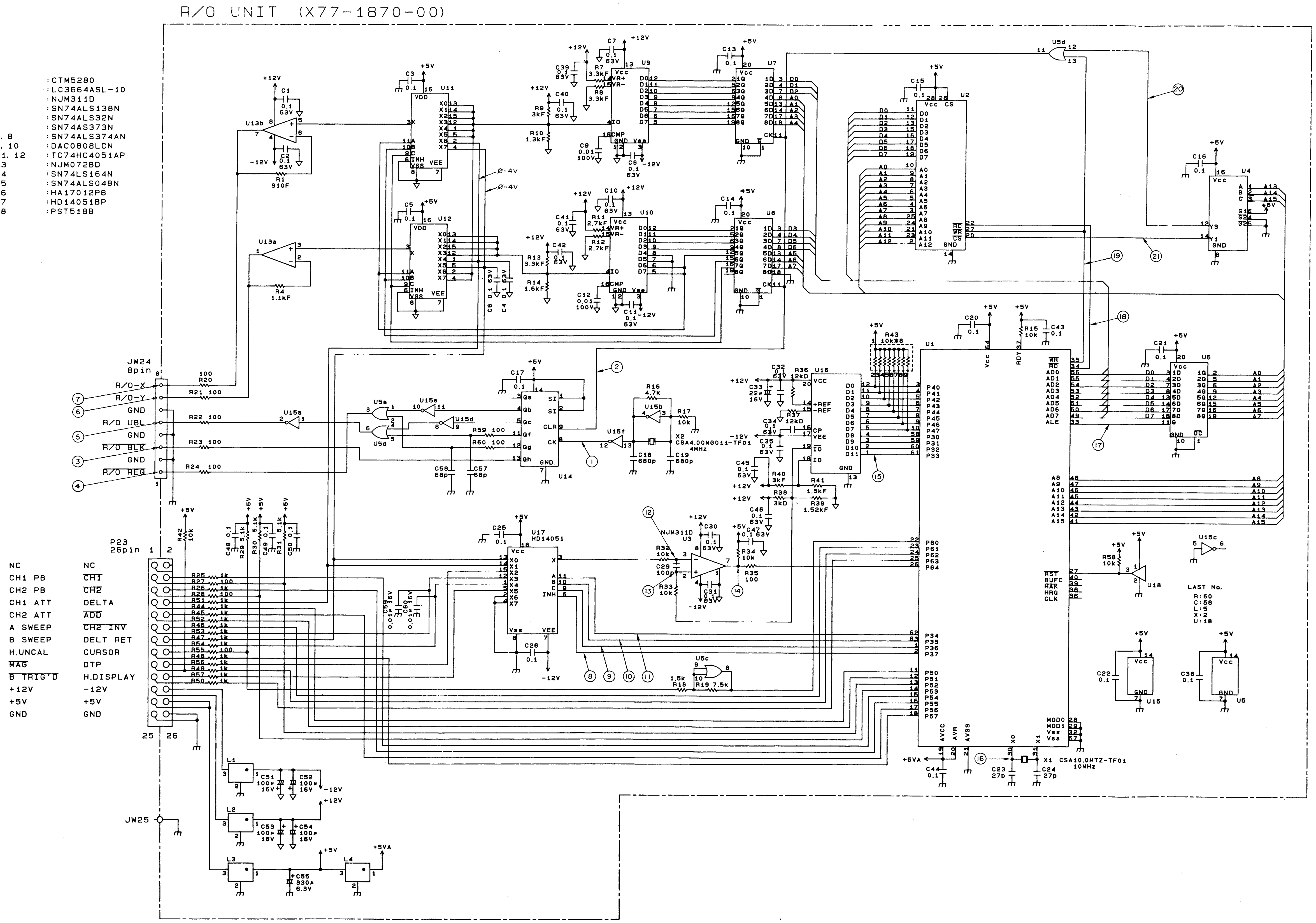


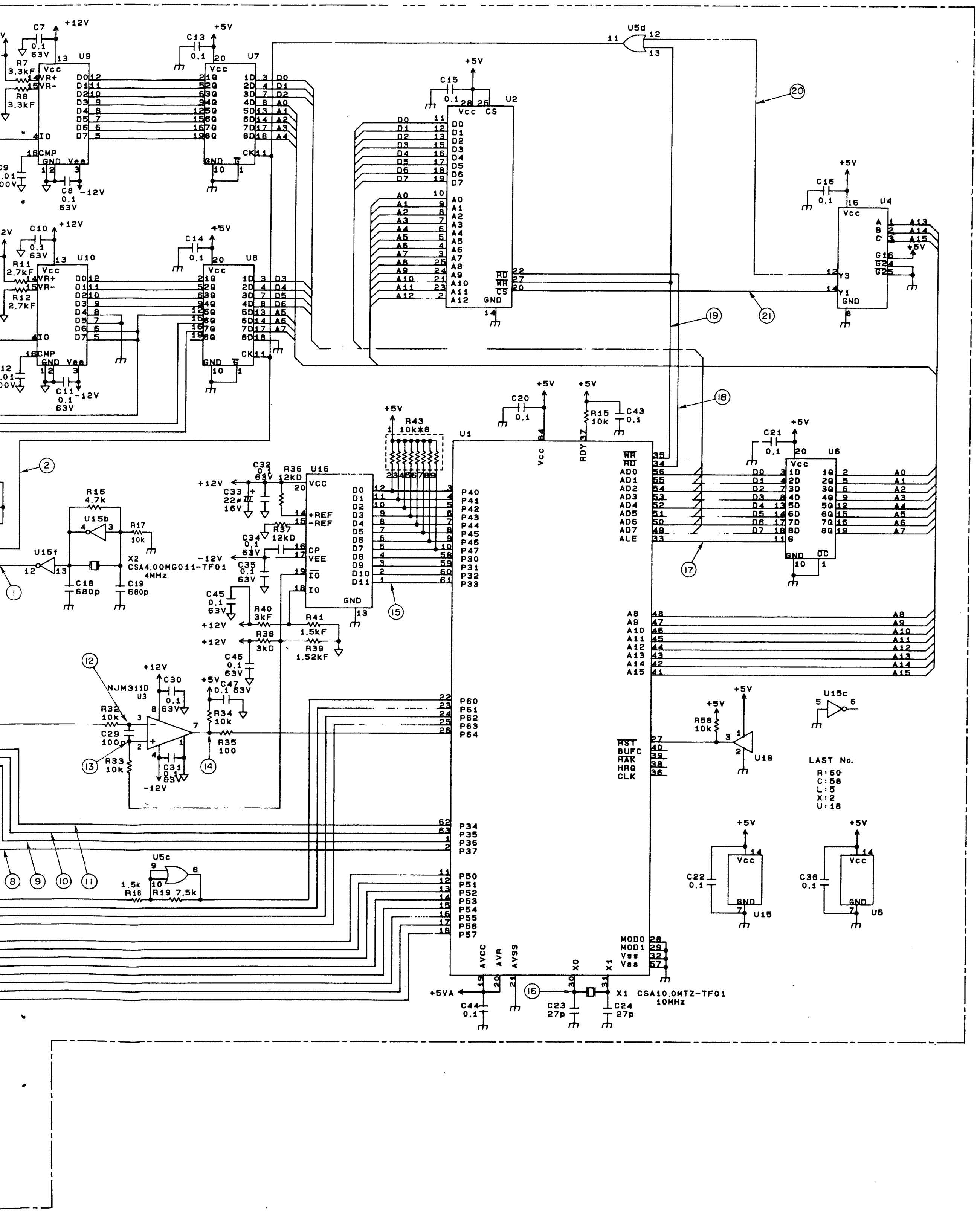
CS-5270 SCHEMATIC DIAGRAM

R/O UNIT (X77-1870-00)

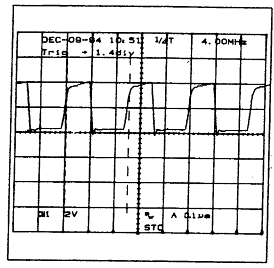
U1 :CTM5280
U2 :LC3664ASL-10
U3 :NJM311D
U4 :SN74ALS138N
U5 :SN74ALS32N
U6 :SN74AS373N
U7, 8 :SN74ALS374AN
U9, 10 :DAC0808LCN
U11, 12 :TC74HC4051AP
U13 :NJM072BD
U14 :SN74LS164N
U15 :SN74ALS04BN
U16 :HA17012PB
U17 :HD14051BP
U18 :PST518B

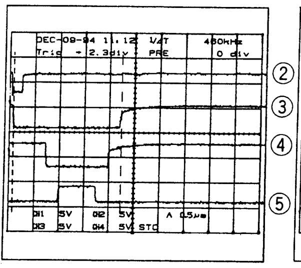

R/O UNIT (X77-1870-00)
JW24
8pin
R/O-X
R/O-Y
GND
R/O UBL
GND
R/O BLK
GND
R/O REQ
P23
26pin
NC
CH1 PB
CH2 PB
CH1 ATT
CH2 ATT
A SWEEP
B SWEEP
H.UNCAL
MAG
B TRIG'D
+12V
+5V
GND
NC
CH1
CH2
DELTA
ADD
CH2 INV
DELT RET
CURSOR
DTP
H.DISPLAY
-12V
+5V
GND
JW25
U1
U2
U3
NJM311D
U4
U5
U6
U7
U8
U9
U10
U11
U12
U13a
U13b
U14
U15
U16
U17
HD14051
U18
X1
CSA10.0MTZ-TF01
10MHz
X2
CSA4.00MG011-TF01
4MHz
L1
L2
L3
L4
+5VA
Ø-4V
LAST No.
R:60
C:58
L:5
X:2
U:18

CS-5270 SCHEMATIC DIAGRAM


U1
U4
U5d
U6
U7
U8
U9
U10
U15
U16
U18
NJM311D U3
X1 CSA10.0MTZ-TF01 10MHz
X2 CSA4.00MG011-TF01 4MHz
R43 10kX8
LAST No.
R:60
C:58
L:5
X:2
U:18
+5V
+12V
-12V
+5VA

①





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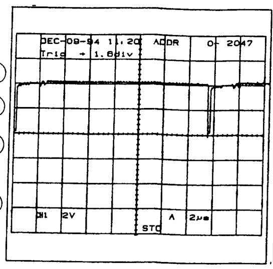

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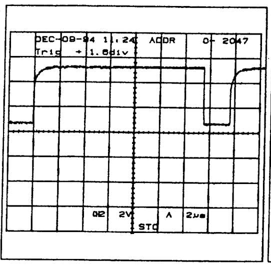

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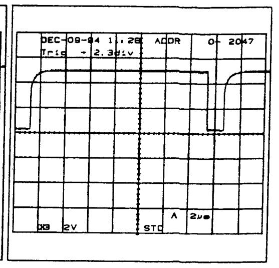

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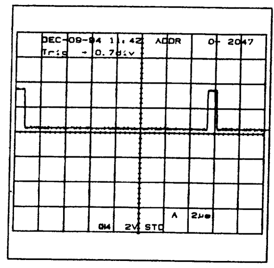

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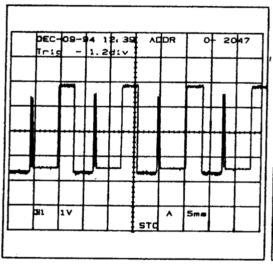

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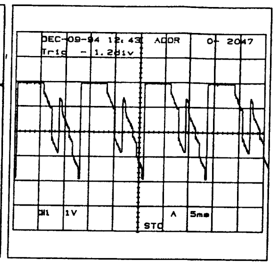
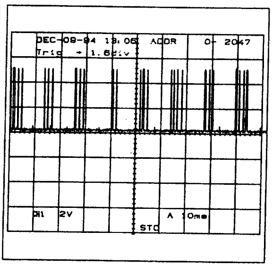
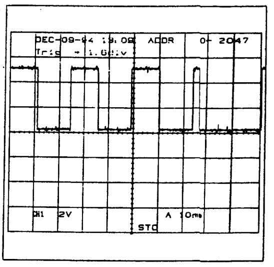


⑧



⑨



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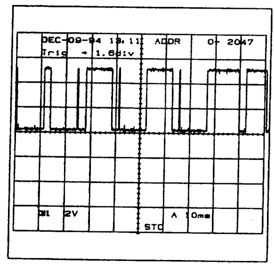

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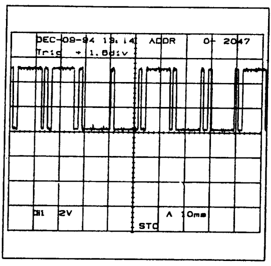
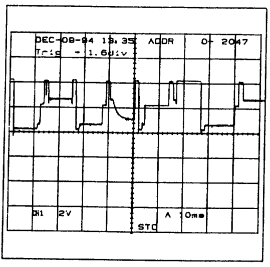
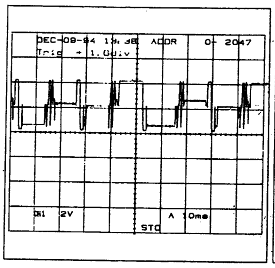


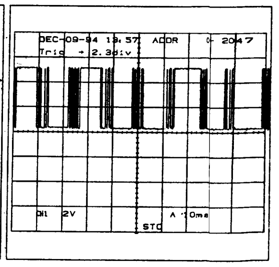
⑫



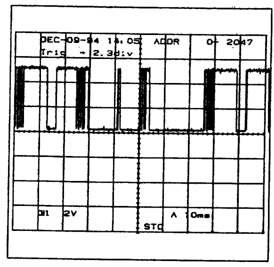
⑬



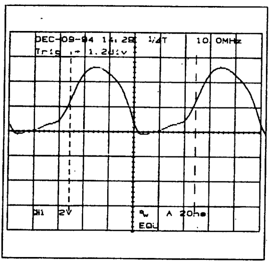
⑭



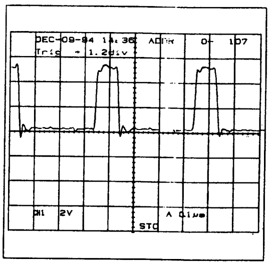
⑮



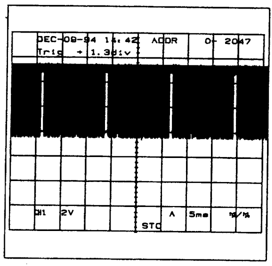
⑯



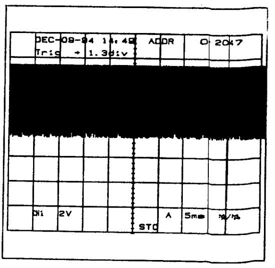
⑰



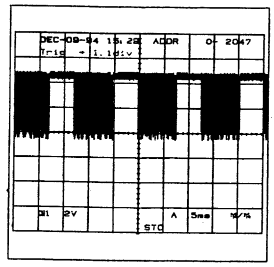
⑱



⑲



⑳



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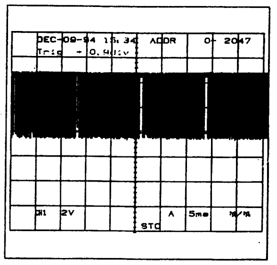


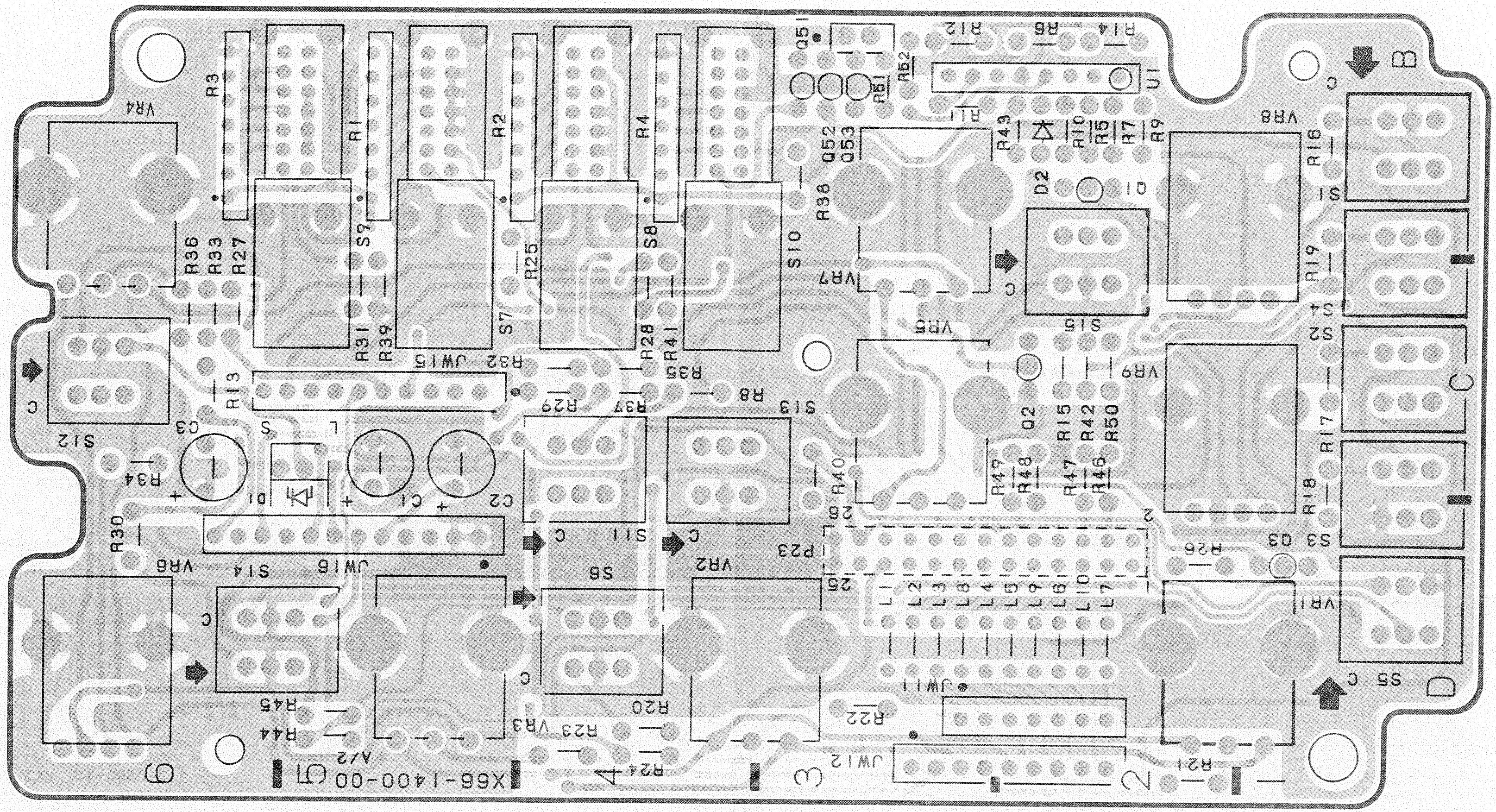
Measuring condition

- V-MODE: CH1
- H-MODE: A
- CURSOR MODE: ON
- ΔT, I/ΔT MODE
- ΔCURSOR 10div
- ΔREF CURSOR 0div

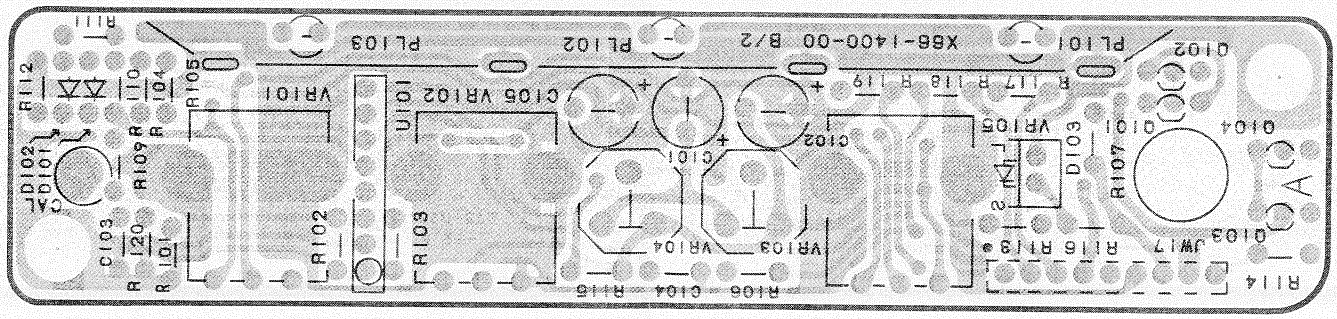
P.C. BOARD

PANEL UNIT (X66-1400-0X)

Pattern side view


X66-1400-00 A/2

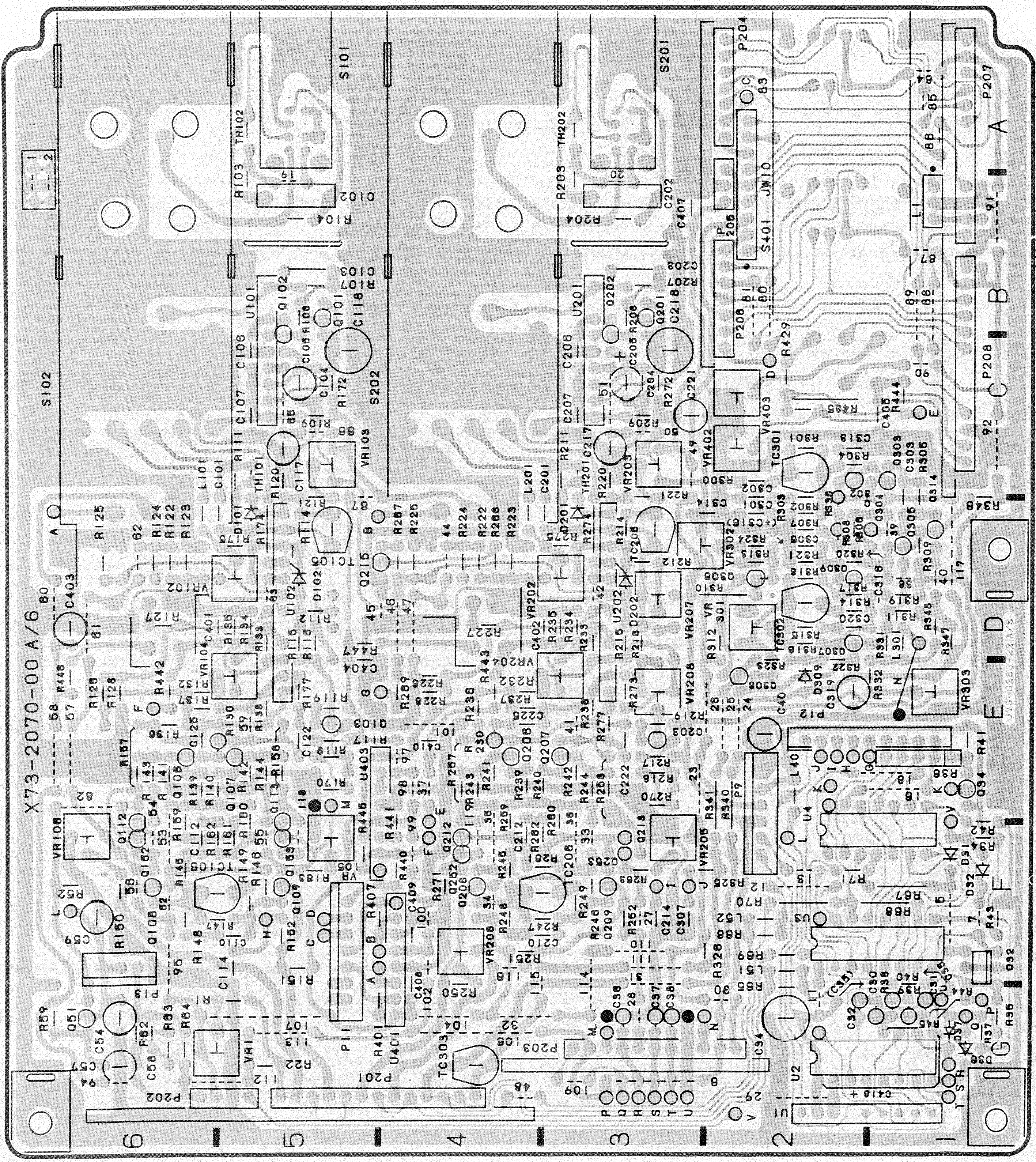
Pattern side view

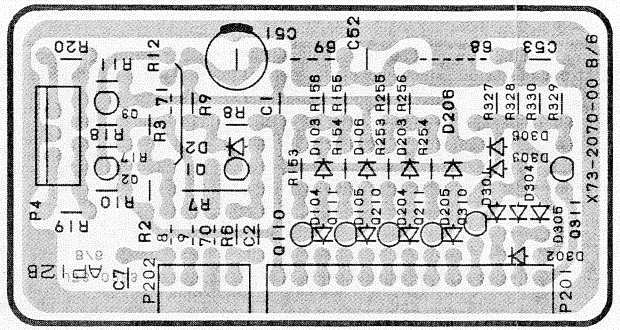

X66-1400-00 B/2

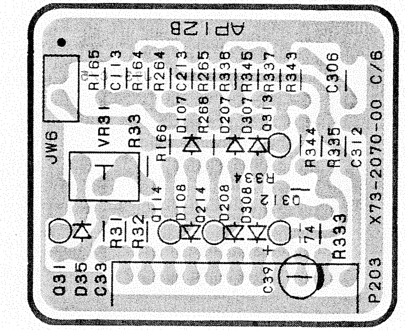
P.C. BOARD

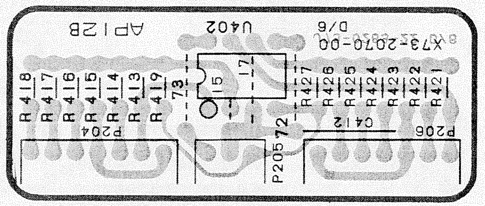
VERTICAL UNIT (X73-2070-0X)

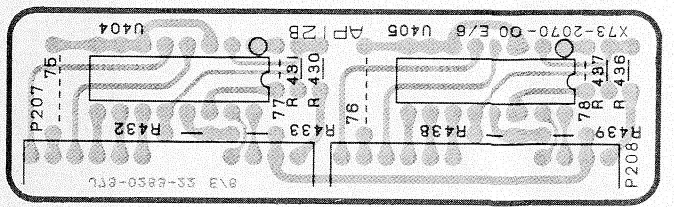
Pattern side view


X73-2070-00 A/6
S101
S102
S201
S202
P204
P207
P208
P202
P201
P203
A
B
C
D
E
F
G
1
2
3
4
5
6

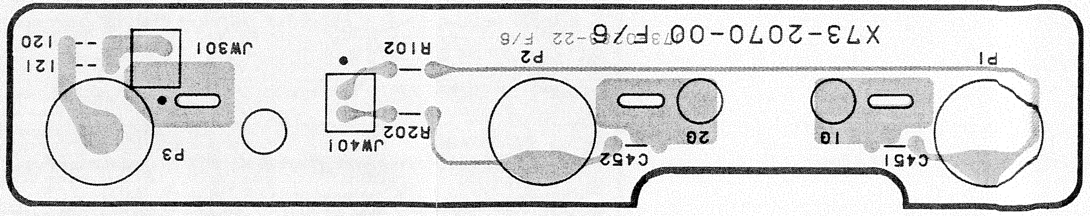

X73-2070-00 B/6
P4
P202
P201


X73-2070-00 C/6
AP12B
P203


X73-2070-00 D/6
AP12B
U402
P205
P206


X73-2070-00 E/6
AP12B
U404
U405
P207
P208

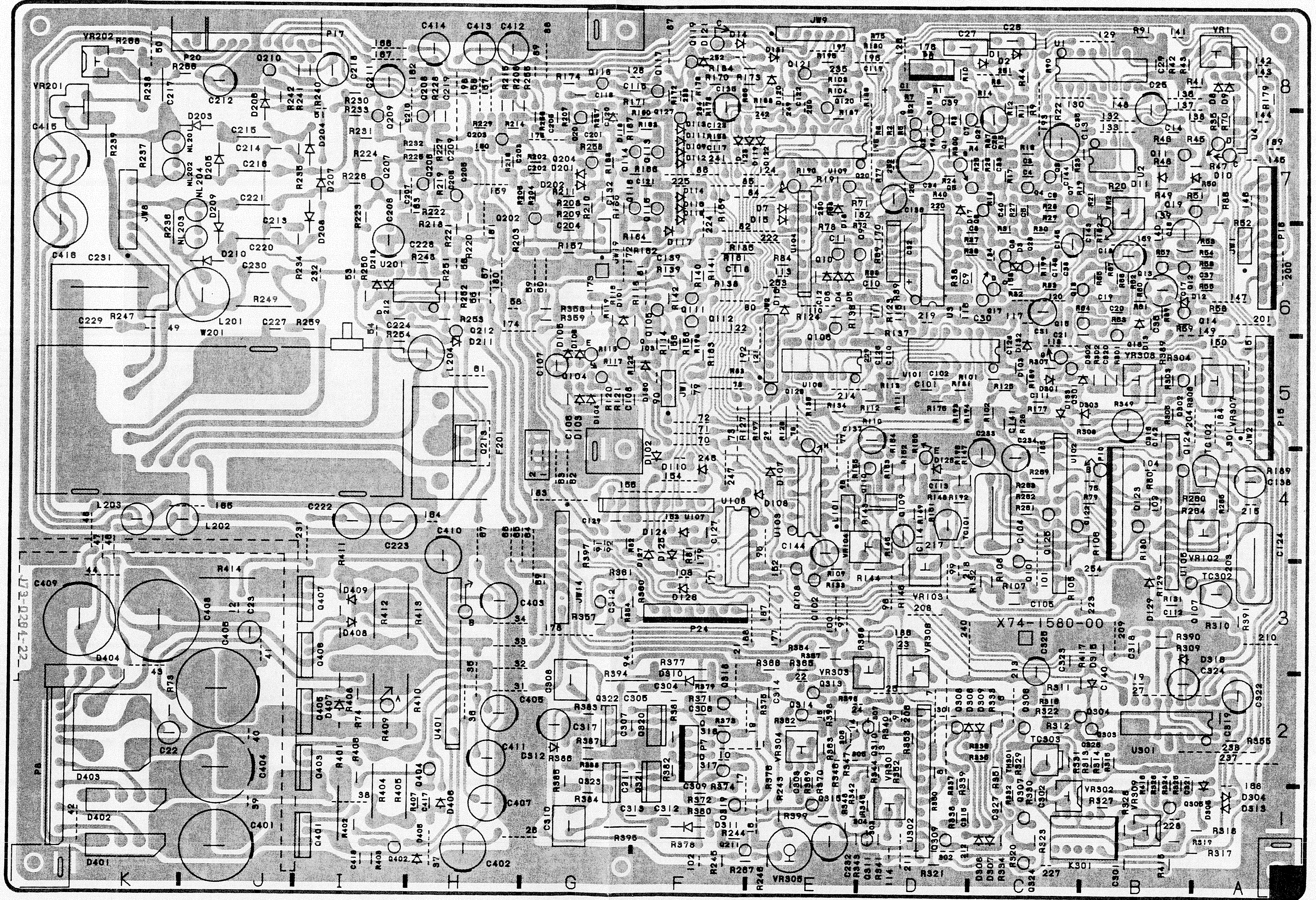
Pattern sideview


X73-2070-00 F/6
P1
P2
P3
JW301
JW401
R102
R202
C451
C452

P.C. BOARD

HORIZONTAL UNIT (X74-1580-0X)

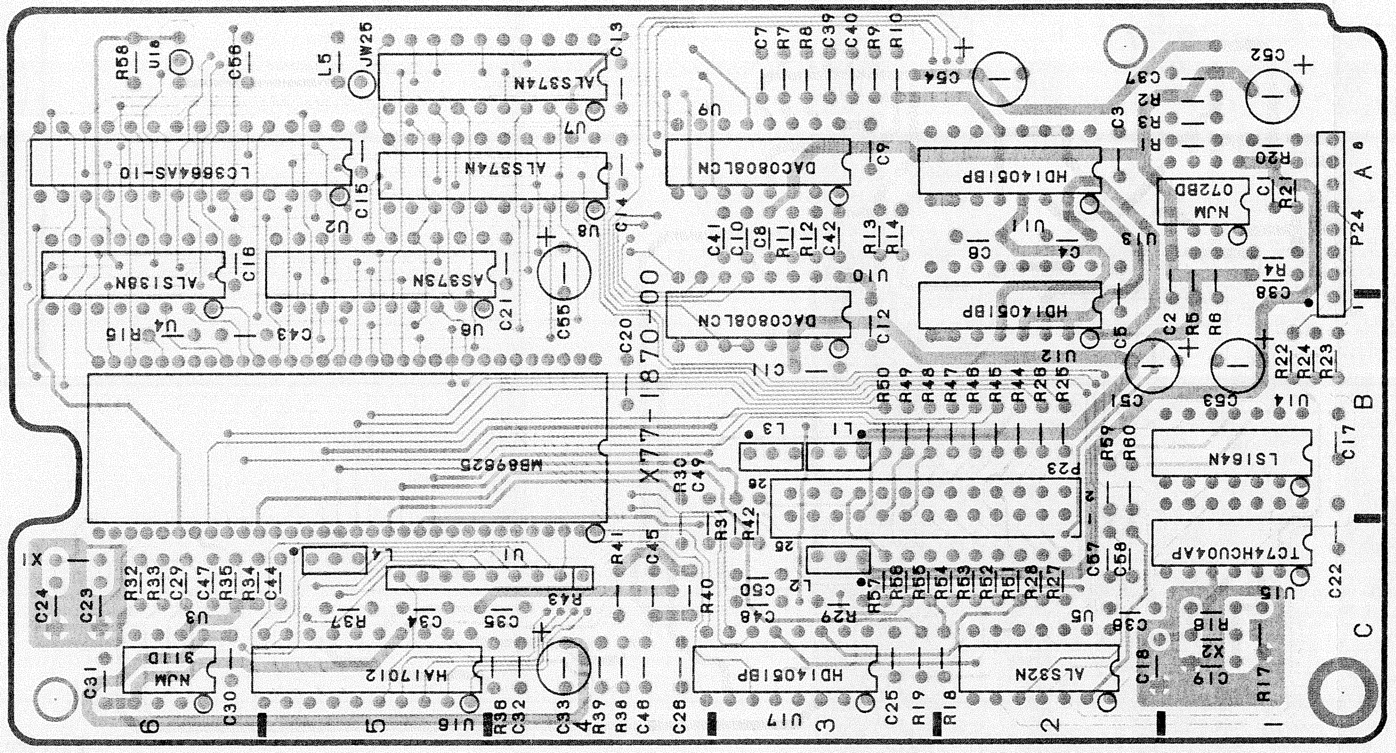
Pattern side view


X74-1580-00
K
J
I
H
G
F
E
D
C
B
A
8
7
6
5
4
3
2
1

P.C. BOARD

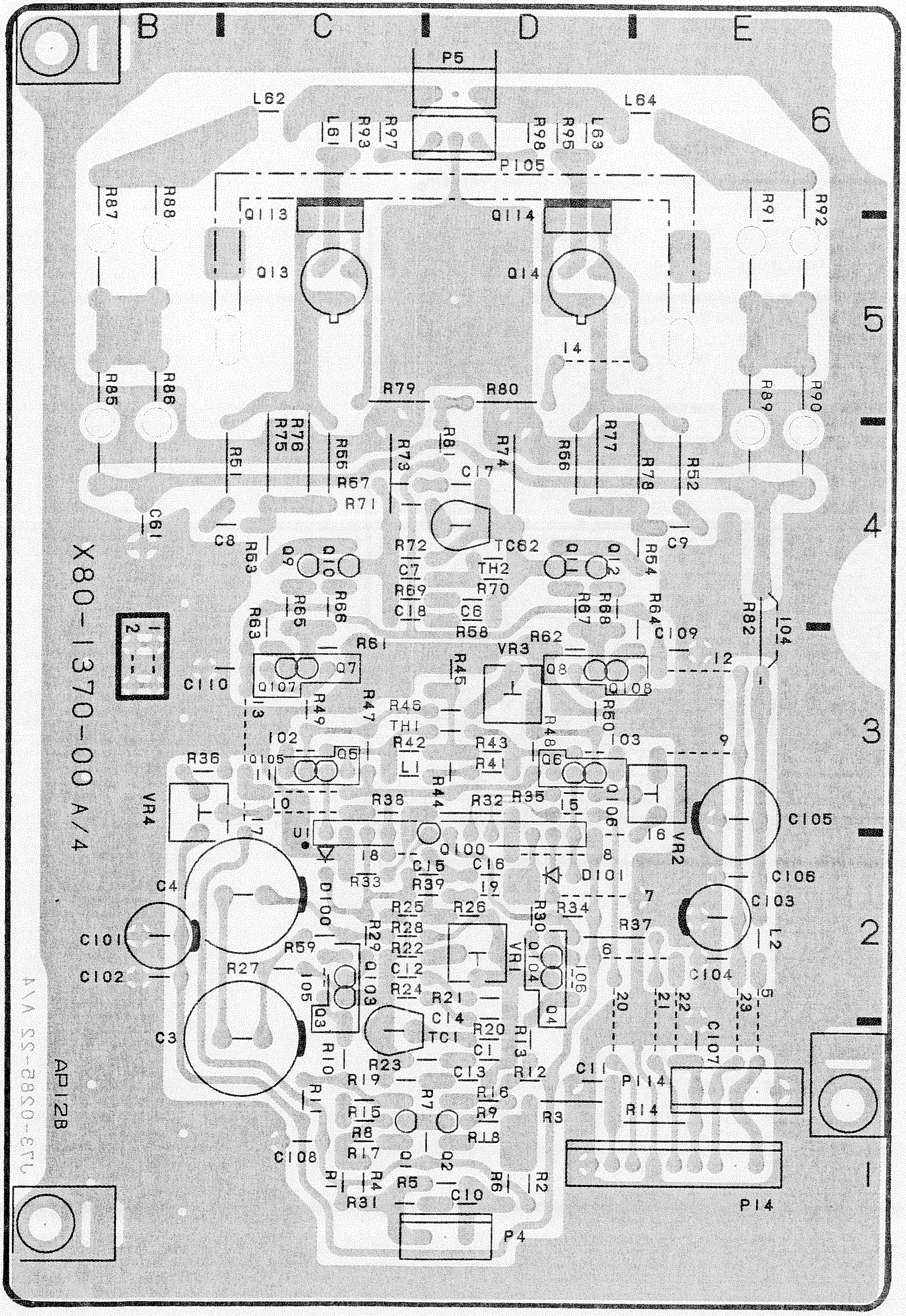
R/O UNIT (X77-1870-0X)

Pattern side view

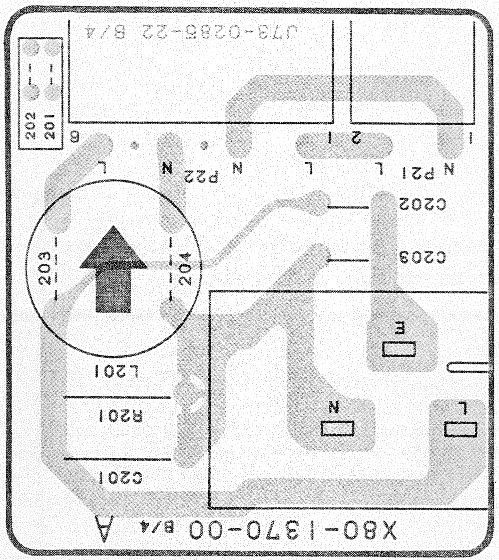

X77-1870-00
P23
P24
A
B
C

P.C. BOARD

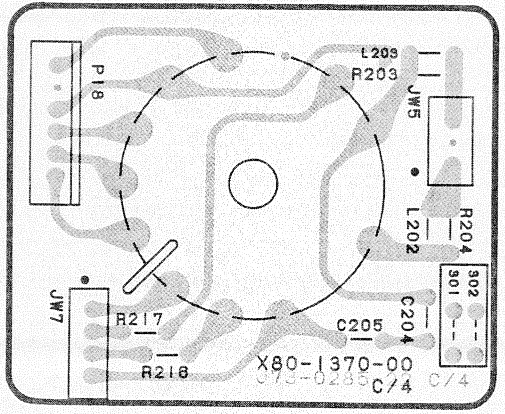
FINAL AMP UNIT (X80-1370-0X)

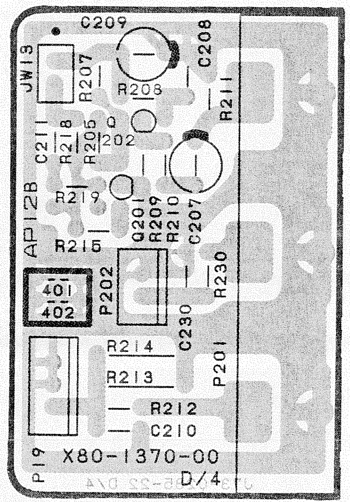

B
C
D
E
6
5
4
3
2
1
P5
P105
L62
L64
L61
R93
R97
R98
R95
L63
R87
R88
R91
R92
Q113
Q114
Q13
Q14
14
R85
R86
R89
R90
R79
R80
R51
R76
R75
R55
R57
R71
R73
R81
R74
C17
R56
R77
R78
R52
C61
C8
R53
Q9
Q10
R72
C7
R69
C18
TC62
TH2
R70
C6
R58
Q11
Q12
R54
C9
R65
R66
R67
R68
R64
R82
I04
C109
12
R63
R61
Q7
Q107
R45
VR3
R62
Q8
Q108
C110
13
R49
R47
R46
TH1
R42
R50
R48
R43
R41
103
9
102
R36
Q105
Q5
Q6
L1
R44
R38
R32
R35
15
Q106
16
VR2
C105
VR4
10
U1
17
18
D100
Q100
C15
C16
R33
R39
19
D101
C106
C4
R25
R26
R30
R34
R37
7
C103
C101
R29
R28
R22
C12
VR1
Q104
6
L2
C102
R59
R27
R24
R21
C104
C3
105
Q3
Q103
C14
TC1
R20
C1
R13
R12
C4
106
20
21
22
23
C107
5
R10
R23
R19
C13
C11
R16
R9
P114
R1
R15
R8
R17
R7
R18
R3
R14
C108
R1
R4
R5
R31
Q2
C10
R6
R2
P4
P14
X80-1370-00 A/4
AP12B

Pattern side view

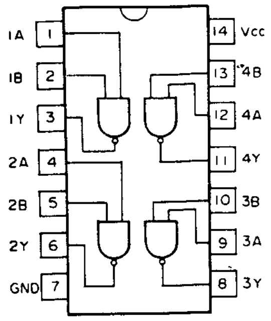

J73-0285-22 B/4
202
201
P21
P22
C202
C203
203
204
L201
R201
C201
X80-1370-00 B/4
A
N
L
E

Pattern side view

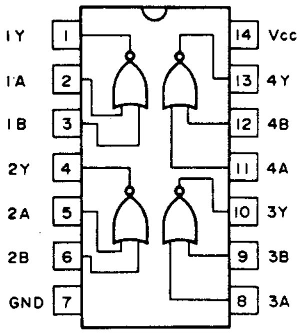

P18
L203
R203
JW5
L202
R204
JW7
302
301
C204
R217
C205
R218
X80-1370-00
C/4


C209
JW18
R207
C208
R206
R211
C211
R218
R205
Q202
AP12B
R219
Q201
R209
R210
C207
R215
401
402
P202
R230
R214
C230
R213
P201
R212
C210
P19
X80-1370-00
D/4

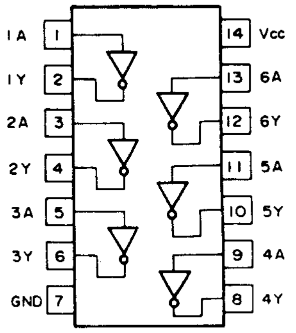
SEMICONDUCTORS


1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 Vcc
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y

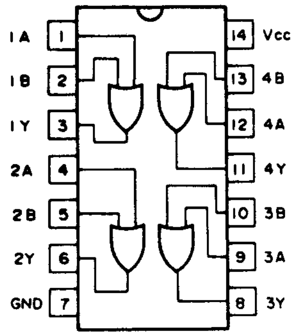
SN74LS00N


1Y 1
1A 2
1B 3
2Y 4
2A 5
2B 6
GND 7
14 Vcc
13 4Y
12 4B
11 4A
10 3Y
9 3B
8 3A

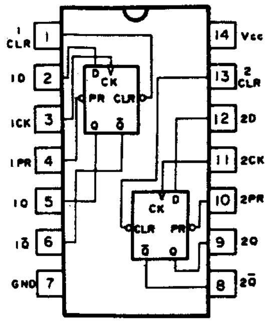
SN74ALS02N


1A 1
1Y 2
2A 3
2Y 4
3A 5
3Y 6
GND 7
14 Vcc
13 6A
12 6Y
11 5A
10 5Y
9 4A
8 4Y

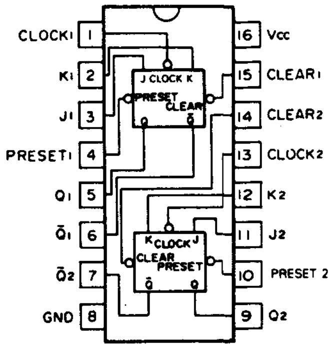
SN74ALS04BN


1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 Vcc
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y

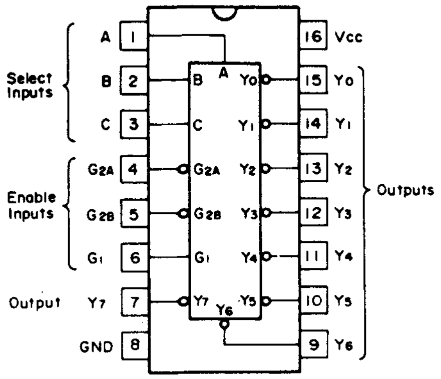
SN74ALS32N


1CLR 1
1D 2
1CK 3
1PR 4
1Q 5
1Q̄ 6
GND 7
14 Vcc
13 2CLR
12 2D
11 2CK
10 2PR
9 2Q
8 2Q̄
D
CK
PR CLR
Q Q̄
CLR PR

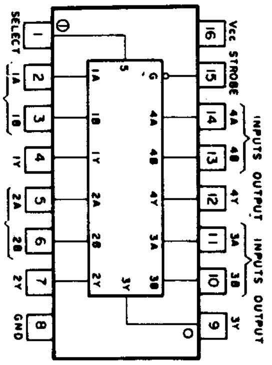
SN74ALS74AN


CLOCK1 1
K1 2
J1 3
PRESET1 4
Q1 5
Q̄1 6
Q̄2 7
GND 8
16 Vcc
15 CLEAR1
14 CLEAR2
13 CLOCK2
12 K2
11 J2
10 PRESET 2
9 Q2
J CLOCK K
PRESET
CLEAR
K CLOCK J
CLEAR
PRESET

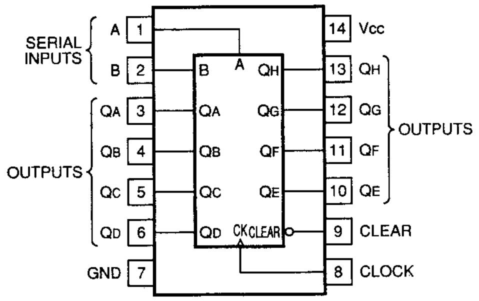
SN74LS112AN


Select Inputs
Enable Inputs
Output
Outputs
A 1
B 2
C 3
G2A 4
G2B 5
G1 6
Y7 7
GND 8
16 Vcc
15 Y0
14 Y1
13 Y2
12 Y3
11 Y4
10 Y5
9 Y6

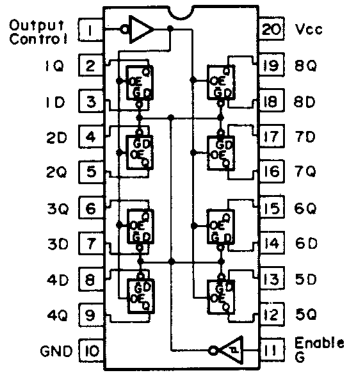
SN74ALS138N


SELECT 1
INPUTS
1A 2
1B 3
OUTPUT
1Y 4
INPUTS
2A 5
2B 6
OUTPUT
2Y 7
GND 8
16 Vcc
15 STROBE
INPUTS
14 4A
13 4B
OUTPUT
12 4Y
INPUTS
11 3A
10 3B
OUTPUT
9 3Y

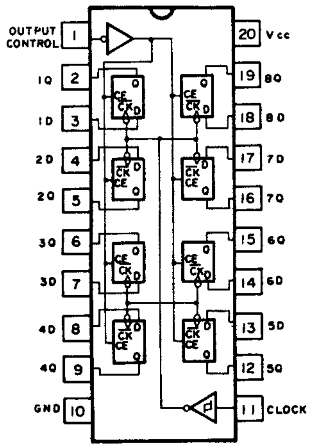
SN74LS158N


SERIAL INPUTS
OUTPUTS
A 1
B 2
QA 3
QB 4
QC 5
QD 6
GND 7
14 Vcc
13 QH
12 QG
11 QF
10 QE
9 CLEAR
8 CLOCK
OUTPUTS
CK CLEAR

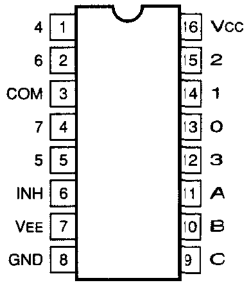
SN74LS164N


Output Control 1
1Q 2
1D 3
2D 4
2Q 5
3Q 6
3D 7
4D 8
4Q 9
GND 10
20 Vcc
19 8Q
18 8D
17 7D
16 7Q
15 6Q
14 6D
13 5D
12 5Q
11 Enable G

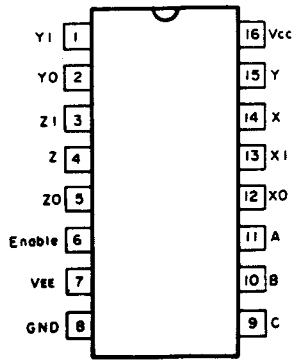
SN74AS373N


OUTPUT CONTROL 1
1Q 2
1D 3
2D 4
2Q 5
3Q 6
3D 7
4D 8
4Q 9
GND 10
20 Vcc
19 8Q
18 8D
17 7D
16 7Q
15 6Q
14 6D
13 5D
12 5Q
11 CLOCK

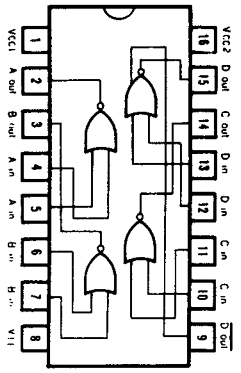
SN74ALS374AN


4 1
6 2
COM 3
7 4
5 5
INH 6
VEE 7
GND 8
16 Vcc
15 2
14 1
13 0
12 3
11 A
10 B
9 C

TC74HC4051AP

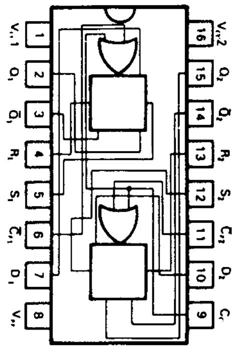

Y1 1
Y0 2
Z1 3
Z 4
Z0 5
Enable 6
VEE 7
GND 8
16 Vcc
15 Y
14 X
13 X1
12 X0
11 A
10 B
9 C

TC74HC4053AP


VCC1 1
A out 2
B out 3
A in 4
A in 5
B in 6
B in 7
VEE 8
16 VCC2
15 D out
14 C out
13 D in
12 D in
11 C in
10 C in
9 D̄ out

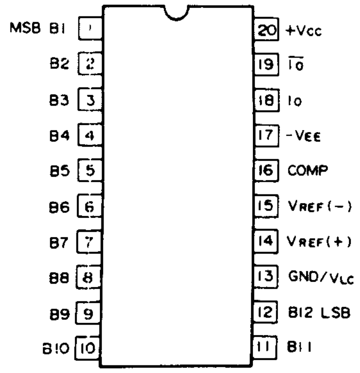
MC10102L

MC10H102L

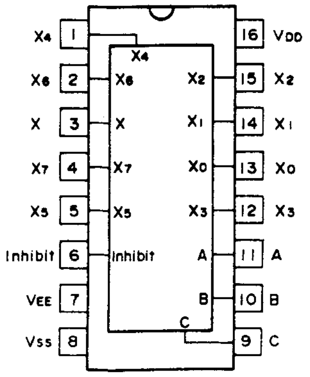

VCC1 1
Q1 2
Q̄1 3
R1 4
S1 5
C̄E1 6
D1 7
VEE 8
16 VCC2
15 Q2
14 Q̄2
13 R2
12 S2
11 C̄E2
10 D2
9 CC

MC10131L

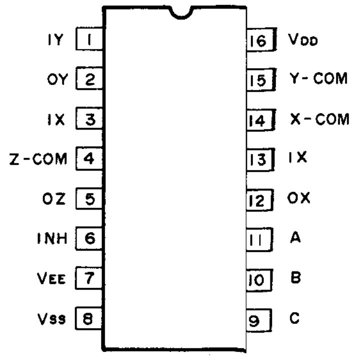
MC10H131L


MSB B1 1
B2 2
B3 3
B4 4
B5 5
B6 6
B7 7
B8 8
B9 9
B10 10
20 +Vcc
19 Ī0
18 I0
17 -VEE
16 COMP
15 VREF(-)
14 VREF(+)
13 GND/VLC
12 B12 LSB
11 B11

HA17012PB

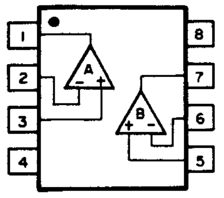

X4 1
X6 2
X 3
X7 4
X5 5
Inhibit 6
VEE 7
VSS 8
16 VDD
15 X2
14 X1
13 X0
12 X3
11 A
10 B
9 C

HD14051BP


IY 1
OY 2
IX 3
Z-COM 4
OZ 5
INH 6
VEE 7
VSS 8
16 VDD
15 Y-COM
14 X-COM
13 IX
12 OX
11 A
10 B
9 C

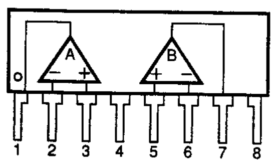
TC4053BP

SEMICONDUCTORS


1
2
3
4
5
6
7
8
A
B

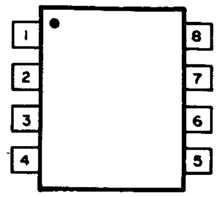
Pin name
1. A OUTPUT
2. A (−) INPUT
3. A (+) INPUT
4. V⁻
5. B (+) INPUT
6. B (−) INPUT
7. B OUTPUT
8. V⁺

NJM072BD
NJM072D
NJM4558D


A
B
1
2
3
4
5
6
7
8

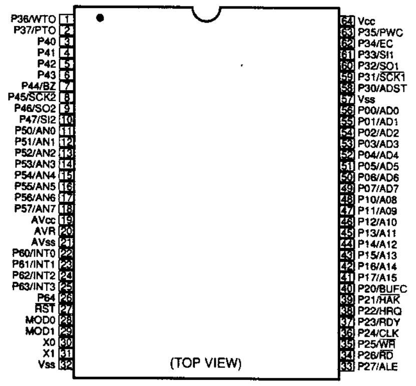
Pin name
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V−
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V+

NJM072L
NJM4558L

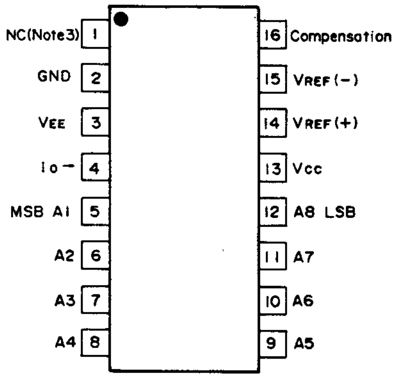


Pin name
1. GROUND
2. + INPUT
3. − INPUT
4. V⁻
5. BAL
6. BAL/STROBE
7. OUTPUT
8. V⁺

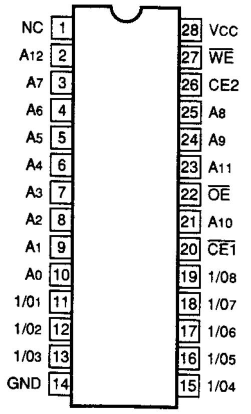
NJM311D


P36/WTO 1
P37/PTO 2
P40 3
P41 4
P42 5
P43 6
P44/$\overline{\text{BZ}}$ 7
P45/$\overline{\text{SCK2}}$ 8
P46/SO2 9
P47/SI2 10
P50/AN0 11
P51/AN1 12
P52/AN2 13
P53/AN3 14
P54/AN4 15
P55/AN5 16
P56/AN6 17
P57/AN7 18
AVcc 19
AVR 20
AVss 21
P60/INT0 22
P61/INT1 23
P62/INT2 24
P63/INT3 25
P64 26
$\overline{\text{RST}}$ 27
MOD0 28
MOD1 29
X0 30
X1 31
Vss 32
64 Vcc
63 P35/PWC
62 P34/EC
61 P33/SI1
60 P32/SO1
59 P31/$\overline{\text{SCK1}}$
58 P30/ADST
57 Vss
56 P00/AD0
55 P01/AD1
54 P02/AD2
53 P03/AD3
52 P04/AD4
51 P05/AD5
50 P06/AD6
49 P07/AD7
48 P10/A08
47 P11/A09
46 P12/A10
45 P13/A11
44 P14/A12
43 P15/A13
42 P16/A14
41 P17/A15
40 P20/BUFC
39 P21/$\overline{\text{HAK}}$
38 P22/HRQ
37 P23/RDY
36 P24/CLK
35 P25/$\overline{\text{WR}}$
34 P26/$\overline{\text{RD}}$
33 P27/ALE
(TOP VIEW)

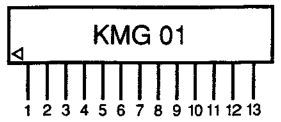
CTM5280


NC(Note3) 1
GND 2
VEE 3
Io− 4
MSB A1 5
A2 6
A3 7
A4 8
16 Compensation
15 VREF(−)
14 VREF(+)
13 Vcc
12 A8 LSB
11 A7
10 A6
9 A5

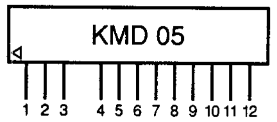
DAC0808LCN


NC 1
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
1/01 11
1/02 12
1/03 13
GND 14
28 VCC
27 $\overline{\text{WE}}$
26 CE2
25 A8
24 A9
23 A11
22 $\overline{\text{OE}}$
21 A10
20 $\overline{\text{CE1}}$
19 1/08
18 1/07
17 1/06
16 1/05
15 1/04

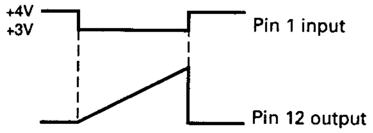
LC3664ASL-10

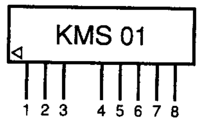

KMG 01
1 2 3 4 5 6 7 8 9 10 11 12 13

1. MIX signal output A
2. GND
3. Signal input A
4. + power supply
5. Bias setting
6. External control
7. R/O character signal input
8. R/O character position input
9. R/O switching signal
10. − power
11. Signal input B
12. GND
13. MIX signal output B


KMD 05
1 2 3 4 5 6 7 8 9 10 11 12

1. Sweep gate input
2. Sweep range input A
3. Sweep range input B
4. Sweep reference voltage input
5. Sweep range input C
6. Offset input
7. − power
8. GND
9. + power
10. External capacitor connection
11. External FET connection
12. Sweep signal output

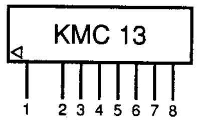

+4V
+3V
Pin 1 input
Pin 12 output


KMS 01
1 2 3 4 5 6 7 8

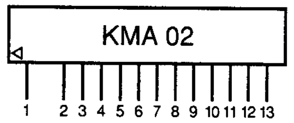
1. Analog signal input
2. + power
3. GND
4. Digital signal output A
5. Digital signal output B
6. Digital signal output C
7. Digital signal output D
8. Digital signal output E

Analog signal input [V]	Output				
	A	B	C	D	E
0.25 ~ 0.45	L	H	H	H	H
0.95 ~ 1.15	H	L	H	H	H
1.65 ~ 1.85	H	H	L	H	H
2.35 ~ 2.55	H	H	H	L	H
3.05 ~ 3.25	H	H	H	H	L

L : 1.0 [V] max
H : 4.5 [V] min

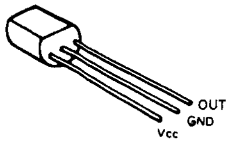

KMC 13
1 2 3 4 5 6 7 8

1. Signal input
2. Compensation
3. FET (source) connection
4. GND
5. + power
6. FET (drain) connection
7. − power
8. Signal output

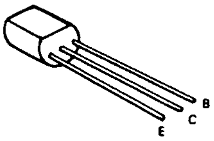

KMA 02
1 2 3 4 5 6 7 8 9 10 11 12 13

1. +140 V output
2. +140 V control
3. +55 V control
4. +55 V output
5. +12 V control
6. +12 V output
7. −12 V control
8. −12 V output
9. +5 V control
10. +5 V output
11. Sweep time reference voltage output
12. External capacitor connection
13. GND

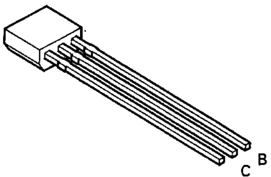
SEMICONDUCTORS



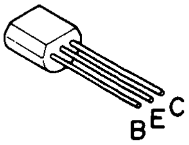
PST518B



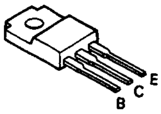
2SA720 (R)
2SA1005 (K)
2SA1208 (S)
2SC1318A (R)
2SC1907
2SC1923 (O)
2SC2551 (O)
2SC2910 (S)



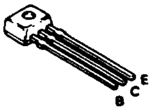
2SA933S
2SC1740S (R,S)



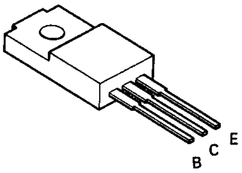
2SA1161
2SC2644
2SC3779 (D)



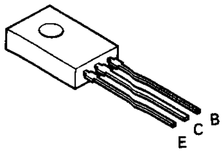
2SA1304
2SB1015 (Y)
2SD1406 (Y)



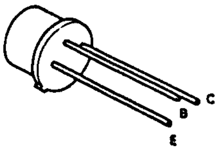
2SA1459 (K)



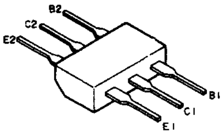
2SA1499 (P)



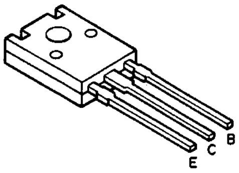
2SA1828 (E)
2SC4732 (E)



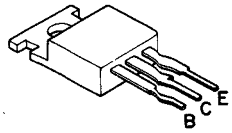
2SC1252


B2
C2
E2
B1
C1
E1

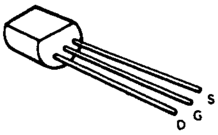
2SC3066 (G)



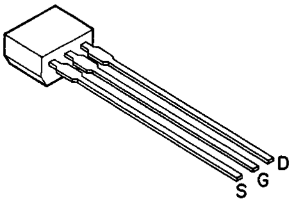
2SC3952 (D)



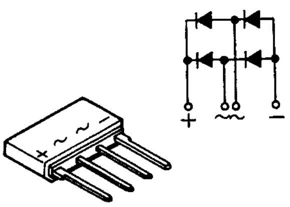
2SD613 (E)



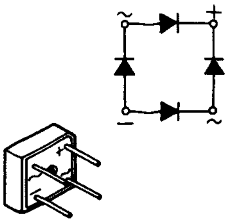
2SK170 (V)



2SK404 (E)



S1VB60



S4VB20F

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